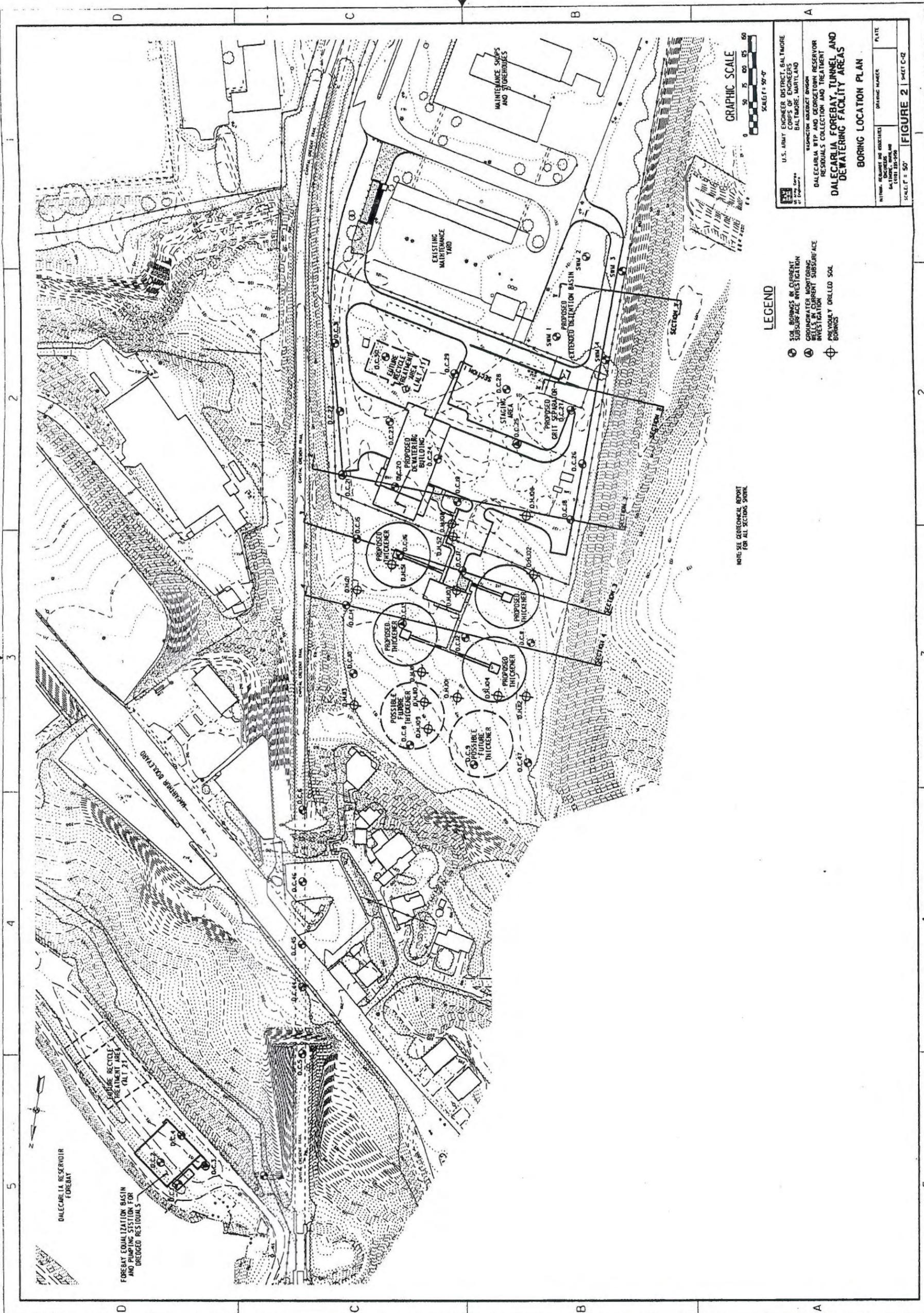


Appendix B
Data From Historical Subsurface Investigations



GRAPHIC SCALE
SCALE: F = 50'-0"

LEGEND

- ⊙ SOIL BORINGS IN CURRENT SUBSURFACE INVESTIGATION
- ⊙ GROUNDWATER MONITORING WELLS IN CURRENT SUBSURFACE INVESTIGATION
- ⊙ PREVIOUSLY DRILLED SOIL BORINGS

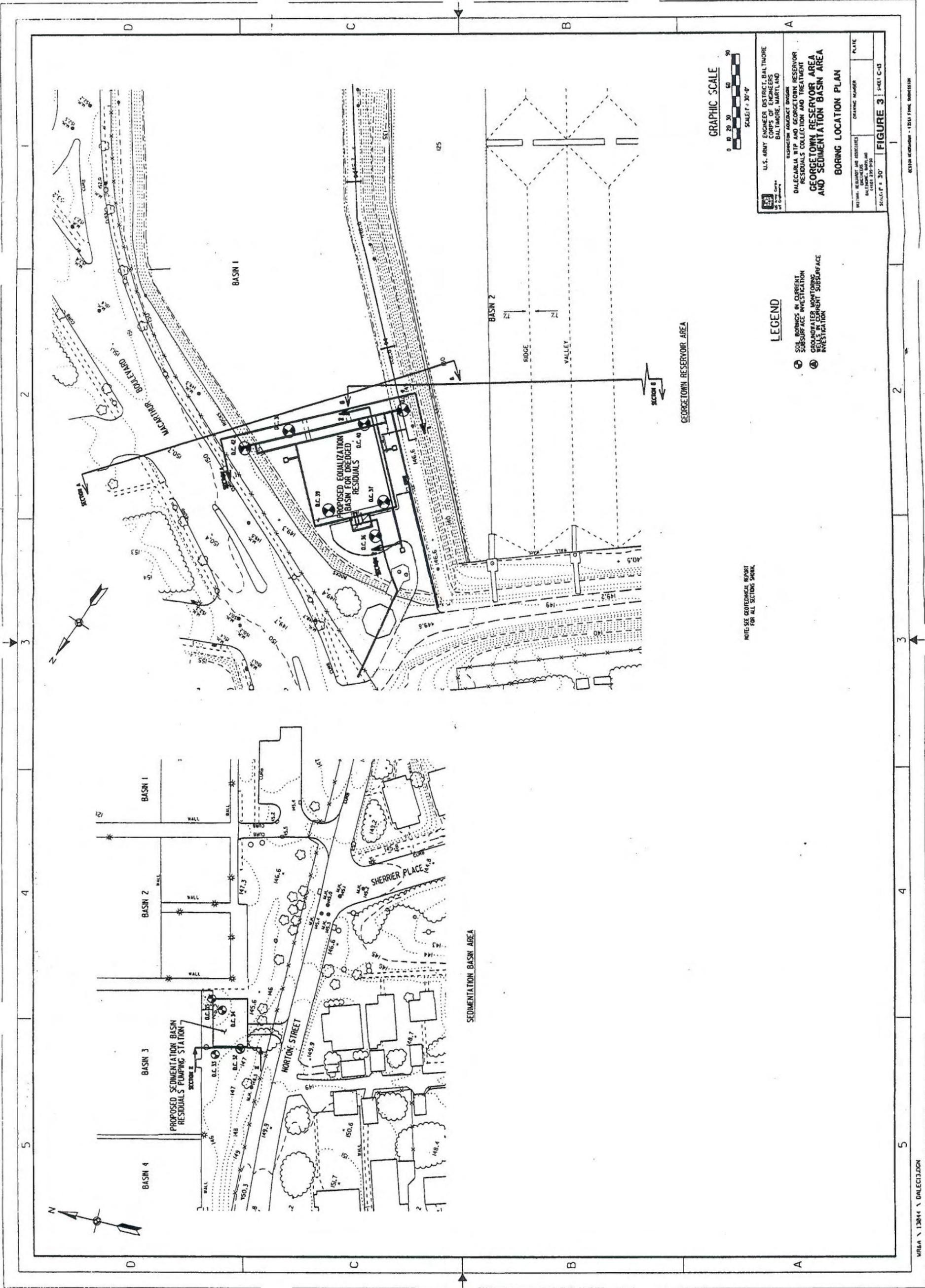
NOTE: SEE GEOTECHNICAL REPORT FOR ALL SECTIONS SHOWN.

U.S. ARMY ENGINEER DISTRICT, BALTIMORE CORPS OF ENGINEERS BALTIMORE, MARYLAND	
BALTIMORE DISTRICT DIVISION DALECARLIA WTP AND GEORGETOWN RESERVOIR RESIDUALS COLLECTION AND TREATMENT DEWATERING FACILITY AREAS	
DRAWING NUMBER (101) 24-100	DATE 11/11/68
SHEET NO. C-2	TOTAL SHEETS C-1 TO C-2

BORING LOCATION PLAN

FIGURE 2 | SHEET C-2

SCALE: F = 50'



GRAPHIC SCALE
SCALE: F = 30'-0"

U.S. ARMY ENGINEER DISTRICT, BALTIMORE CORPS OF ENGINEERS BALTIMORE, MARYLAND	
WASHINGTON ADJUTANT DIVISION DALECARLIA WTP AND GEORGETOWN RESERVOIR RESIDUALS COLLECTION AND TREATMENT GEORGETOWN RESERVOIR AREA AND SEDIMENTATION BASIN AREA	
BORING LOCATION PLAN	DRAWING NUMBER PLATE
SCALE: F = 30'	FIGURE 3 SHEET C-13

- LEGEND**
- ⊕ SOIL BORINGS IN CURRENT SUBSURFACE INVESTIGATION
 - ⊙ GROUNDWATER MONITORING WELLS IN CURRENT SUBSURFACE INVESTIGATION

NOTE: SEE GEOLOGICAL REPORT FOR ALL SECTIONS SHOWN

GEORGETOWN RESERVOIR AREA

VR64 \ 13044 \ DALEC13.DGN

IMA, INC.
 7050 CHESAPEAKE ROAD, SUITE 205
 HYATTSVILLE, MD 20784
 PHONE (301) 306-9677 FAX (301) 306-9632

BORING REPORT

PROJECT: Dalecarlia Water Treatment Plant		BORING NO.: DC-15			
LOCATION: 5900 Mac Arthur Blvd., Brookmount, MD		DATE: 07/10/95			
START: 07/10/95		END: 07/10/95			
DRILLER: Jeff Stouffer		ELEVATION: 141.8			
DRILL RIG:					
Depth (In Ft.)	Soil Description	Sample (In Ft.)		Blows / 6" Penetration	Rec/ Att
		No.	To		
0	12.0 Tan, dry to loose to medium dense silty sand with trace of gravel (fill)	1	0 1.5	4	5 15"
12.0	23.5 Gray to tan, damp, medium stiff to soft clay with trace of gravel & brick fragments (fill)	2	4.5 6.0	2	3 17"
23.0	42.0 Reddish brown to tan, dry, medium dense to very dense, micaceous silty sand (decomposed rock)	3	9.5 11.0	8	4 18"
42.0	52.0 Gray, medium to hard, rock	4	14.5 16.0	3	3 12"
		5	19.5 21.0	2	2 18"
		6	24.5 26.0	3	14 9 18"
		7	29.5 31.0	10	9 6 18"
		8	34.5 36.0	36	50/6 12"
		9	39.5 41.0	45	50/3 9"
		10	42.0 47.0	RQD	61% 56"
	*No water encountered while augering	11	47.0 52.0	RQD	81% 60"
	*Auger refusal 42 Ft.				
	*Bottom at 52 Ft.				
	*After 24 hours, water at 33 Ft. caved at 34 Ft.				

Water 21 Ft. at completion

Caved 41 Ft.

Sheet No. 1 of 1

WOMING, Inc.
 7050 CHESAPEAKE ROAD, SUITE 205
 HYATTSVILLE, MD 20784
 PHONE (301) 306-9677 FAX (301) 306-9632

BORING REPORT

PROJECT: Dalecarlia Water Treatment Plant		BORING NO.: DC-8	
LOCATION: 5900 Mac Arthur Blvd., Brookmount, MD		DATE: 07/11/95	
START: 07/11/95		END: 07/11/95	
DRILLER: Jeff Stouffer		ELEVATION: 152.2 Ft.	
DRILL RIG:			

Depth (In Ft.)	Soil Description	Sample (In Ft.)		Blows / 6" Penetration			Rec/ Att	
		No.	From	To				
0	Tan, dry, very loose to medium dense to loose, silty sand, with trace of roots (fill)	1	0	1.5	1	2	2	18"
17.0	Gray, damp, medium stiff organic clay (fill)	2	4.5	6.0	3	4	5	18"
22.0	Tan, dry, loose to very dense micaceous silty sand, (decomposed rock)	3	9.5	11.0	7	8	9	18"
50.5	Gray, medium to hard, fractured rock	4	14.5	16.0	3	4	5	18"
		5	19.5	21.0	10	5	5	18"
		6	24.5	26.0	3	4	4	12"
		7	29.5	31.0	35	50/3		12"
		8	34.5	36.0	31	50/3		12"
		9	39.5	41.0	50/4			4"
		10	44.5	46.0	50/2			2"
	WR&A Note: Strong petroleum-like odors from 5 to 10 feet.	11	49.5	51.0	50/2			2"
	*Auger refusal 50.5 Ft.	12	50.5	55.5	RQD	40%		60"
	*No water encountered while drilling	13	55.5	60.5	RQD	43%		60"
	*Hard augering from 18.5 Ft. to 19.5 Ft.							
	*Bottom at 60.5 Ft.							

Water Dry After 24 Hours

Caved 39.0 Ft.

7050 CHESAPEAKE ROAD, SUITE 205
 HYATTSVILLE, MD 20784
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BORING REPORT

PROJECT: Dalecarlia Water Treatment Plant		BORING NO.: DC-9							
LOCATION: 5900 Mac Arthur Blvd., Brookmount, MD		DATE: 07/12/95							
START: 07/12/95		ELEVATION: 149.4 Ft.							
END: 07/12/95		DRILL RIG: Jeff Stouffer							
Depth (In Ft.)	Soil Description		Sample (In Ft.)		Blows / 6" Penetration			Rec/Alt	
	From	To	No.	From	To				
0	7.0		1	0	1.5	1	2	2	16"
7.0	22.0		2	4.5	6.0	2	3	7	18"
22.0	57.0		3	9.5	11.0	11	9	10	18"
57.0	61.0		4	14.5	16.0	4	5	5	18"
61.0	71.0		5	19.5	21.0	3	3	50/6	10"
			6	24.5	26.0	11	10	9	18"
			7	29.5	31.0	10	17	17	6"
			8	34.5	36.0	2	4	12	18"
			9	39.5	41.0	4	6	8	5"
			10	44.5	46.0	5	9	12	3"
			11	49.5	51.0	7	21	9	6"
			12	54.5	56.0	4	5	13	12"
			13	59.5	61.0	50/3*			3"
			14	61.0	66.0	RQD	20%		60"
			15	66.0	71.0	RQD	10%		60"

DOMINIX, Inc.
 7050 CHESAPEAKE ROAD, SUITE 205
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BORING REPORT

PROJECT:		Dalecarlia Water Treatment Plant		BORING NO.:	DC-11				
LOCATION:		5900 Mac Arthur Blvd., Brookmount, MD		DATE:	07/18/95				
START:		07/18/95	END:	07/18/95	ELEVATION:	143.1 Ft.			
DRILLER:		Jeff Stouffer				DRILL RIG:			
Depth (In Ft.)	Soil Description		Sample (In Ft.)		Blows / 6" Penetration		Rec/Att		
	From	To	No.	From	To				
0	4.0	Tan, dry, loose, silty sand with trace of roots (fill)	1	0	1.5	2	3	4	9
4.0	7.0	Tan, dry, very stiff clay with gravel & rock fragments (fill)	2	4.5	6.0	5	12	14	12
7.0	27.0	Tan, dry, , medium dense, micaceous silty sand (fill)	3	9.5	11.0	3	6	5	12
27.0	32.0	Tan, loose, clayey silt (fill)	4	14.5	16.0	3	3	6	12
32.0	60.0	Tan, dry, very dense to medium dense to very dense, micaceous silty sand with some rock fragments (decomposed to weathered rock)	5	19.5	21.0	5	4	7	10
60.0	70.0	Gray, medium to hard fractured rock	6	24.5	26.0	11	13	14	18
			7	29.5	31.0	3	2	3	8
			8	34.5	36.0	50/1			1
			9	39.5	41.0	3	4	5	8
			10	44.5	46.0	18	42	9	12
			11	49.5	51.0	25	9	9	18
		*Bottom 70.0 Ft.	12	54.5	56.0	8	9	24	7
		*Encountered water at 59.0 Ft.	13	59.5	61.0	50/1			1
			14	60.0	65.0	RQD	40%		51"
		*After 24 hours water 49 Ft., caved 51 Ft.	15	65.0	70.0	RQD	70%		60"

Water 49.0 Ft. at completion

Caved 51.0 Ft.

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BORING REPORT

PROJECT:		Dalecarlia Water Treatment Plant		BORING NO.:		DC-12			
LOCATION:		5900 Mac Arthur Blvd., Brookmount, MD		DATE:		07/06/95			
START:		07/06/95	END:		07/06/95	ELEVATION:		145.9	
DRILLER:		Jeff Stouffer		DRILL RIG:					
Depth (In Ft.)	Soil Description		Sample (In Ft.)		Blows / 6" Penetration		Rec/Att		
	From	To	No.	From	To	No.		Penetration	
0	18.0	Brown, dry, very loose to loose, micaceous clayey silt with trace of roots & gravel (fill)	1	0	1.5	1	1	2	12"
18.0	32.0	Gray, damp, medium stiff, clay with trace of roots (fill)	2	4.5	6.0	3	4	6	10"
32.0	60.0	Tan, dry, dense to medium dense to dense, micaceous silty sand with trace of gravel (fill)	3	9.5	11.0	4	5	9	5"
60.0	68.0	Tan, wet, very dense, micaceous silty sand (decomposed rock)	4	14.5	16.0	3	3	3	4"
68.0	78.0	Gray, medium to hard, rock (6" quartz layer 70 Ft. to 70.5 Ft.)	5	19.5	21.0	2	2	5	12"
			6	24.5	26.0	3	4	4	18"
			7	29.5	31.0	3	5	5	18"
		WR&A Note: Gray clay has petroleum-like odor.	8	34.5	36.0	5	19	20	18"
			9	39.5	41.0	4	5	9	18"
			10	44.5	46.0	4	5	8	8"
			11	49.5	51.0	4	4	7	12"
			12	54.5	56.0	6	12	20	18"
		*Auger refusal 68 Ft.	13	59.5	61.0	9	17	17	6"
		*Encountered water at 50 Ft.	14	64.5	66.0	18	35	50/55	18"
		*At completion water at 15 Ft., caved 20 Ft.	15	68.0	73.0	RQD	50%	50%	54"
			16	73.0	78.0	RQD	63%	63%	60"

Water Dry after 24 hours

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BORING REPORT

PROJECT:		Dalecarlia Water Treatment Plant		BORING NO.:		DC-13				
LOCATION:		5900 Mac Arthur Blvd., Brookmount, MD		DATE:		07/11/95				
START:		07/11/95		END:		07/12/95				
DRILLER:		Paul Suit		ELEVATION:		147.9				
DRILL RIG:										
Depth (In Ft.)		Soil Description		Sample (In Ft.)		Blows / 6" Penetration		Rec/ Att		
From	To	No.	From	To						
0	19			1	0	1.5	2	2	5"	
19	33.0		Brown to gray, dry to wet, soft to very soft, silty clay with trace of brick & concrete fragments & small boulders (fill)	2	5.0	6.5	7	10	14	18"
33.0	50.5		Gray, medium very fractured rock.	3	10.0	11.5	6	7	4	18"
50.5	52.5			4	15.0	16.5	8	5	4	12"
52.5	60.5			5	20.0	21.5	8	6	8	8"
				6	25.0	26.5	5	7	5	5"
				7	30.0	31.5	10	8		5"
				8	35.0	35.5	51/5"		27	4"
				9	40.0	41.5	17	41		12"
			*No water encountered	10	45.0	45.2	51/3"			3"
			*Void from 58.5 to 59.5 Ft.	11	50.0	50.1	51/2"			2"
			*Installed 2" well to 51.5 Ft.	12	50.5	55.5	RQD	15%		56"
			*Boring offset 6 Ft. west	13	55.5	60.5	RQD	6%		48"
			*Bottom 60.5 Ft.							
			*Strong solvent odor at 10 Ft. WR&A Note: Also noticed odors.							
			*Hard grinding of augers 8 to 10.0 Ft.							

Water After 14 Hours Dry

Caved (Inside Augers)

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BORING REPORT

PROJECT: Dalecarlia Water Treatment Plant		BORING NO.: DC-14					
LOCATION: 5900 Mac Arthur Blvd., Brookmount, MD		DATE: 07/10/95					
START: 07/10/95		END: 07/10/95					
DRILLER: Jeff Stouffer		ELEVATION: 148.3					
DRILL RIG:							
Depth (In Ft.)	Soil Description		Sample (In Ft.)		Blows / 6" Penetration	Rec/Att	
	From	To	No.	From To			
0	8.0	Brown, dry, soft, silty clay with trace of gravel	1	0 1.5	1	4	12"
8.0	30.5	Tan to whitish gray, dry, medium dense to very dense, silty sand (decomposed rock)	2	4.5 6.0	3	5	12"
30.5	40.5	Gray, medium to hard fractured rock	3	9.5 11.0	5	6	0"
			4	14.5 16.0	8	6	0"
			5	19.5 21.0	50	5 1/4	8"
			6	24.5 26.0	50/2		2"
			7	29.5 31.0	50/0		0"
			8	30.5 35.5	RQD	50%	58"
			9	35.5 40.5	RQD	33%	60"
		*Water at 21 Ft. caved 22 Ft.					
		*Auger refusal 30.5 Ft.					
		*No water encountered while drilling					
		*Bottom at 40.5 Ft.					

Water 20 Ft. at completion

Caved 22.0 Ft.

Sheet No. 1 of 1

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BORING REPORT

PROJECT:		Dalecarlia Water Treatment Plant		BORING NO.:	DC-16				
LOCATION:		5900 Mac Arthur Blvd., Brookmount, MD		DATE:	07/03/95				
START:		07/03/95	END:	07/03/95	ELEVATION:	143.6 Ft.			
DRILLER:		Jeff Stouffer				DRILL RIG:			
Depth (In Ft.)	Soil Description		Sample (In Ft.)		Blows / 6" Penetration		Rec/ Att		
	From	To	No.	From	To	No.		Att	
0	4.0	Tan, dry, very loose, silty sand & wood fragments (fill)	1	0	1.5	1	1	2	12"
4.0	8.0	Brown, damp, stiff, silty clay with trace of brick fragments (fill)	2	4.5	6.0	5	5	8	12"
8.0	17.0	Brown, dry, loose, silty sand with trace of gravel (fill)	3	9.5	11.0	5	3	2	12"
17.0	22.0	Gray, moist, soft, clay (fill)	4	14.5	16.0	1	1	4	10"
22.0	27.0	Tan, dry, medium dense to dense, silty, sand, with trace of rock fragments (fill)	5	19.5	21.0	3	2	4	12"
27.0	53.5	Brown, dry, to wet, dense to very dense, micaceous silt, with trace of rock fragments (decomposed to weathered rock)	6	24.5	26.0	7	7	10	18"
53.5	63.5	Gray, medium to hard, rock	7	29.5	31.0	6	12	19	
			8	34.5	36.0	21	50/5"		
			9	39.5	40.4	36	50/5"		
			10	44.5	44.6	50/2"			1/2"
			11	49.5	49.6	50/2"			2"
			12	53.5	58.5	RQD	55%		60"
		*Encountered water at 46.0 Ft.	13	58.5	63.5	RQD	66%		60"
		*Auger refusal at 53.5 Ft.							

Water 11 Ft. After 24 hours (hard rain over night)

Caved 12.5 Ft.

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BORING REPORT

PROJECT:	Dalecarlia Water Treatment Plant		BORING NO.:	DC-17
LOCATION:	5900 Mac Arthur Blvd., Brookmount, MD			
START:	07/05/95	END:	07/05/95	
DRILLER:	Jeff Stouffer			
	ELEVATION:		142.7 Ft.	
	DRILL RIG:			

Depth (In Ft.)	Soil Description	Sample (In Ft.)		Blows / 6" Penetration	Rec/ Att				
		No.	To						
0	Brown to gray, moist to wet, very soft to hard to soft, clay with layers of silty sand & trace of gravel (fill - trace to a little wood & roots from 47 Ft. to 57 Ft.) Gray, dry, very dense silty sand & rock fragments (weathered rock) Gray, medium to hard, rock	1	0	1.5	1	2	2	6"	
57.0		2	4.5	6.0	5	6	8	12"	
63.5		3	9.5	11.0	5	2	2	3	6"
		4	14.5	16.0	1	3	4	4	6"
		5	19.5	21.0	4	3	5	5	8"
		6	24.5	26.0		5	5	5	6"
		7	29.5	31.0		14	14	14	16"
		8	34.5	36.0	1		16	16	8"
		9	39.5	41.0	6	6			5"
		10	44.5	46.0	2	2	10	10	12"
		11	49.5	51.0	12	3	3	3	12"
		12	54.5	56.0	5		14	14	6"
		13	59.5	61.0	50/2				2"
		14	63.5	68.5	RQD	25%			60"
		15	68.5	73.5	RQD	40%			55"

Water 13 Ft. After 24 hours

Caved 16.0 Ft.

Sheet No. 1 of 1

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 7050 CHESAPEAKE ROAD, SUITE 205
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BORING REPORT

PROJECT:		Dalecarlia Water Treatment Plant		BORING NO.:	DC-18		
LOCATION:		5900 Mac Arthur Blvd., Brookmount, MD		DATE:	07/03/95		
START:		07/03/95	END:	07/04/95	ELEVATION:	136.3 Ft.	
DRILLER:		Jeff Stouffer				DRILL RIG:	
Depth (In Ft.)	Soil Description		Sample (In Ft.)		Blows / 6" Penetration	Rec/Alt	
	From	To	No.	From To			
0	3.0	Tan, dry, very loose, silty sand (fill)	1	0 15.0	WOH/6	1	12"
3.0	13.0	Gray, damp, medium stiff clay with trace of brick fragments (fill)	2	4.5 60.0		4	12"
13.0	17.0	Tan & gray, dry, medium dense silty sand (fill)	3	9.5 11.0		3	18"
17.0	32.0	Gray to tan, damp, soft to very soft, silty clay, with trace of brick & rock fragments (fill)	4	14.5 16.0		4	12"
32.0	54.0	Brown, dry, medium dense to loose to very dense, micaceous silty sand with trace of rock fragments (decomposed to weathered rock)	5	19.5 21.0		3	12"
54.0	64.0	Gray, medium to hard, rock	6	24.5 26.0		12	15"
			7	29.5 31.0		2	12"
			8	34.5 36.0		6	16"
			9	39.5 41.0		3	3"
			10	44.5 46.0		8	11"
			11	49.5 51.0		4	2"
		*Bottom at Ft.	12	54.5 54.7	50/2		2"
		*At completion water at 44 Ft. Caved 46 Ft.	13	54.0 59.0	RQD	8%	52"
		*Auger refusal at Ft.	14	59.0 64.0	RQD	21%	60"
		*Hard augering (24 to 29 Ft.) (32 to 34 Ft.) (43.5 to 44.5 Ft.)					

DOM, X, II
 7050 CHESAPEAKE ROAD, SUITE 205
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BORING REPORT

PROJECT:	Dalecarlia Water Treatment Plant	BORING NO.:	DC-19
LOCATION:	5900 Mac Arthur Blvd., Brookmount, MD	DATE:	06/26/95
START:	06/26/95	END:	06/26/95
DRILLER:	Jeff Stouffer	ELEVATION:	
		DRILL RIG:	CME 55

Depth (In Ft.)	Soil Description	Sample (In Ft.)		Blows / 6" Penetration	Rec/ Att
		No.	To		
0	Brown, dry, loose to medium dense, silty sand with layers of clay (fill)	1	0 1.5	3	3 4
17	Gray to tan, dry, medium stiff to very stiff, clay with traces of gravel (fill)	2	4.5 6.0	3	9 7
38	Tan, moist, medium stiff, silty clay (possible fill)	3	9.5 11.0	4	4 4
47	Tan, dry, very dense, silty sand with trace of rock fragment (possible fill)	4	14.5 16.0	3	7 9
53	Greenish gray, wet, very dense silty sand and rock fragments (weathered rock)	5	19.5 21.0	5	3 5
60	Gray, hard rock	6	24.5 26.0	3	4 5
		7	29.5 31.0	7	9 9 0"
		8	34.5 36.0	4	7 11
		9	39.5 41.0	2	2 4
		10	44.5 46.0	3	3 6
	WR&A Note: Sample has petroleum product smell.	11	49.5 50.2	31	50/3"
	*Hard augering from 47 Ft.	12	54.5 54.6	50/2"	
	*No water encountered	13	59.5 59.6	50/1"	2"
	*Bottom 70 Ft.	14	60.0 65.0	RQ	D 20 0/0 62"
		15	65.0 70.0	RQ	D 25 0/0 60"

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BORING REPORT

PROJECT: Dalecarlia Water Treatment Plant		BORING NO.: DC-20
LOCATION: 5900 Mac Arthur Blvd., Brookmount, MD		DATE: 06/28/95
START: 06/28/95	END: 06/28/95	ELEVATION: 14.5 Ft.
DRILLER: Paul Suit		DRILL RIG:

Depth (In Ft.)	Soil Description	Sample (In Ft.)			Blows / 6" Penetration	Rec/ Att
		No.	From	To		
0	Crushed rock (CRG)	1	0	1.5	3	8 13
2.5	Light brown to brown, dry to moist, medium dense to loose, micaceous clayey silt (fill)	2	5	6.5	3	4 10
12.0	Brown to reddish brown, dry, medium stiff to very stiff, clay with trace of gravel (fill)	3	10	11.5	4	4 5
26.0	Brown, dry, dense to very dense, micaceous silty sand with trace of roots (fill)	4	15	16.5	5	4 4
33.0	Brown, dry to wet, very dense, micaceous silty sand with rock fragments (decomposed to weathered rock)	5	20	21.5	23	11 17
49.5	Brown to gray, soft to hard rock with layers of decomposed rock	6	25	26.5	49	19 22
54.5	Gray, hard very fractured rock	7	30	30.3	51/4"	
		8	35	36.5	29	30 36
		9	40	40.1	51/1"	
		10	45	45.5	100/6"	
		11	49.5	54.5	RQ	D 27%
	*Auger refusal at Ft.	12	54.5	59.5	RQ	D 0%
	*Encountered water at 37 Ft.					
	*Very hard grinding of augers from 37 Ft. to Ft.					
	*Bottom 59.5 Ft.					

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BORING REPORT

PROJECT: Dalecarlia Water Treatment Plant		BORING NO.: DC-21			
LOCATION: 5900 Mac Arthur Blvd., Brookmount, MD		DATE: 06/30/95			
START: 06/30/95		END: 06/30/95			
DRILLER: Paul Suit		ELEVATION: Ft.			
DRILL RIG:					
Depth (In Ft.)	Soil Description	Sample (In Ft.)		Blows / 6" Penetration	Rec/ Att
		No.	To		
0	Brown & red, moist, very soft to very stiff, silty clay with trace of roots & gravel (fill)	1	0 1.5	1	3
13.0	Tan, dry to wet, medium dense to very dense, silty sand, decomposed rock	2	5.0 6.5	5	11
42.5	Gray, medium hard rock	3	10.0 11.5	24	10
		4	15.0 16.5	8	12
		5	20.0 20.5	51/6"	6"
		6	25.0 26.2	6	25
		7	30.0 30.1	51/1"	5 2/3"
		8	35.0 35.0	51/0"	0"
		9	42.5 47.5	Run #1	RQD % 0/0
		10	47.5 52.5	Run #2	RQD 100%
	*Bottom 52.5 Ft.				
	*Two-inch monitoring well installed to 40 Ft.				
	*Encountered water at 33.0 Ft.				

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BORING REPORT

PROJECT:		Dalecarlia Water Treatment Plant		BORING NO.:	DC-22			
LOCATION:		5900 Mac Arthur Blvd., Brookmount, MD		DATE:	06/29/95			
START:		06/29/95	END:	06/29/95	ELEVATION:	138.2 Ft.		
DRILLER:		Paul Suit				DRILL RIG:		
Depth (In Ft.)	Soil Description		Sample (In Ft.)		Blows / 6" Penetration		Rec/ Att	
	From	To	No.	From	To			
0	9.0	Brown, dry, loose, micaceous silty sand (fill)	1	0	1.5	1	3	7"
9.0	24.0	Brown, damp, hard to very stiff to hard, silty clay, with a little rock fragments (fill)	2	5.0	6.5	4	6	4
24.0	45.5	Brown, dry to wet, very dense, micaceous silty sand (decomposed to weathered rock)	3	10.0	11.5	30	23	4
45.5	55.5	Gray medium to hard rock	4	15.0	16.5	12	8	14
			5	20.0	21.5	30	24	9
			6	25.0	26.5	24	29	19
			7	30.0	30.0	51/0"		30
			8	35.0	35.1	100/1"		0"
			9	40.0	40.0	51/0"		0"
			10	45.0	45.1	51/1.5"		1.5"
		*Bottom 55.5 Ft.	11	45.5	50.5	RQD	37%	48"
		*Slight to hard grinding of augers from 28 Ft. to 30 Ft. and 44 Ft. to 45.5 Ft.	12	50.5	55.5	RQD	83%	60"
		*Encountered water at 28.0 Ft.						
		*Auger refusal at 45.5 Ft.						
		*At completion water 22 Ft; Caved 44 Ft.						

Water _____ Ft.

Caved _____ Ft.

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BORING REPORT

PROJECT:	Dalecarlia Water Treatment Plant	BORING NO.:	DC-23
LOCATION:	5900 Mac Arthur Blvd., Brookmount, MD	DATE:	06/26/95
START:	06/26/95	END:	06/28/95
DRILLER:	Paul Suit	ELEVATION:	138.3 Ft.
		DRILL RIG:	

Depth (In Ft.)	Soil Description	Sample (In Ft.)		Blows / 6" Penetration			Rec/Att	
		No.	From	To				
0	13.0	1	0	1.5	2	3	8	9"
13.0	23.0	2	5.0	6.5	12	8	6	14"
23.0	45.0	3	10.0	11.5	3	2	5	16"
45.0	55.0	4	15.0	16.5	4	9	4	12"
		5	20.0	21.5	3	6	9	15"
		6	25.0	26.5	2	7	13	18"
		7	30.0	30.0	51/5"			5"
		8	35.0	35.1	74/1"			0"
		9	40.0	40.0	51/1"			1"
		10	45.0	45.0	51/0"			0"
		11	45.0	50.0	RQD	20%		54"
		12	50.0	55.0	RQD	88%		41"

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BORING REPORT

PROJECT:		Dalecarlia Water Treatment Plant		BORING NO.:	DC-25			
LOCATION:		5900 Mac Arthur Blvd., Brookmount, MD		DATE:	07/06/95			
START:		07/06/95	END:	07/07/95	ELEVATION:	136.2		
DRILLER:		Paul Suit				DRILL RIG:		
Depth (In Ft.)	Soil Description		Sample (In Ft.)		Blows / 6" Penetration	Rec/ Att		
	From	To	No.	From To				
0	2.0	Brownish gray to gray, dry to wet, very loose, silty sand with some rock fragments & small boulders (fill)	1	0 1.5	3	6	7	12"
2.0	43.0	Gray, wet, loose to very dense, silty sand & rock fragments (decomposed to weathered rock)	2	5.0 6.5	5	7	13	18"
43.0	55.0	Brown, soft partially weathered rock	3	10.0 11.5	4	9	14	18"
55.0	65.0	Gray, medium to hard fractured, rock	4	15.0 16.5	10	8	13	3"
		Gray soft to medium hard fractured rock	5	20.0 21.5	8	7	7	18"
			6	25.0 26.5	7	10	14	18"
			7	30.0 31.5	7	9	14	8"
			8	35.0 36.5	14	12	12	18"
			9	40.0 41.5	20	10	13	12"
			10	45.0 46.5	20	30	32	16"
		*Installed 2" monitoring well to 54 Ft.	11	50.0 51.5	29	30	36	18"
		*Bottom at 65.0 Ft.	12	55.0 55.6	51/2"			0"
		*Boring offset 7 Ft. south	13	55.5 60.0	RQD	17%		60"
		*Encountered water at 45.5 Ft.	14	60.0 65.0	RQD	23%		50"

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BORING REPORT

PROJECT:	Dalecarlia Water Treatment Plant	BORING NO.:	DC-26
LOCATION:	5900 Mac Arthur Blvd., Brookmount, MD	DATE:	05/27/95
START:	05/27/95	END:	06/28/95
DRILLER:	Jeff Stouffer	ELEVATION:	135.6 Ft.
		DRILL RIG:	

Depth (In Ft.)	Soil Description	Sample (In Ft.)		Blows / 6" Penetration			Rec/Alt
		No.	From To				
0	Brown to gray, damp, soft to very stiff, silty clay with trace of gravel and brick fragments (fill)	1	0 1.5	2	2	3	
33.0	Grayish tan, dry, medium dense, silty sand with gravel and rock fragments (fill)	2	4.5 6.0	5	11	8	
39.0	Greenish gray, dry, medium dense silty sand & rock fragments	3	9.5 11.0	2	6	8	
48.0	Tan, wet, medium dense, sand & gravel	4	14.5 16.0	4	6	10	
53.0	Gray, wet, very dense, weathered rock	5	19.5 21.0	3	6	8	
55.5	Gray, hard, rock	6	24.5 26.0	3	4	7	
		7	29.5 31.0	6	8	7	
		8	34.5 36.0	24	13	7	
		9	39.5 41.0	9	8	10	
		10	44.5 46.0	3	5	9	
		11	49.5 51.0	2	5	6	
	*Bottom 65.5 Ft.	12	54.5 56.0	50/2			
	*Encountered water at 50.0 Ft.	13	55.5 60.5	RQD	10%	53"	
	*Hard augering 37 Ft. to 38 Ft.		60.5 65.5	RQD	81%	60"	

Water 44.0 Ft.

Caved 47.0 Ft.

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BORING REPORT

PROJECT:	Dalecarlia Water Treatment Plant	BORING NO.:	DC-27
LOCATION:	5900 Mac Arthur Blvd., Brookmount, MD	DATE:	05/26/95
START:	05/26/95	END:	05/27/95
DRILLER:	Jeff Stouffer	ELEVATION:	135.1 Ft.
DRILL RIG:			

Depth (In Ft.)	Soil Description	Sample (In Ft.)		Blows / 6" Penetration		Rec/ Att
		No.	From To	No.	From To	
0	Brown to gray, damp, soft to very stiff, silty clay with trace of gravel and brick fragments (fill)	1	0 1.5	3	3 4	
7.0	Grayish tan, dry, medium dense, silty sand with gravel and rock fragments (fill)	2	4.5 6.0	3	3 3	
12.0	Greenish gray, dry, medium dense silty sand & rock fragments	3	9.5 11.0	4	6 13	
17.0	Tan, wet, medium dense, sand & gravel	4	14.5 16.0	3	6 6	
28.0	Gray, wet, very dense, weathered rock	5	19.5 21.0	3	5 9	
43.0	Gray, hard, rock	6	24.5 26.0	3	3 6	
54.5		7	29.5 31.0	9	9 13	
		8	34.5 36.0	7	5 13	
		9	39.5 41.0	4	9 8	
		10	44.5 46.0	10	31 36	
		11	49.5 51.0	4	8 8	
	*Bottom 64.5 Ft.	12	54.5 59.5	RQD	50%	60"
	*Encountered water at 50.0 Ft.	13	59.5 64.5	RQD	47%	60"
	*Auger refusal 54.5 Ft.					
	*After 24 hours, 38' 10", caved 39 Ft.					

Water 37.0 Ft. at completion

Caved 44.0 Ft.

Sheet No. 1 of 1

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BORING REPORT

PROJECT:		Dalecarlia Water Treatment Plant		BORING NO.:	DC-28		
LOCATION:		5900 Mac Arthur Blvd., Brookmount, MD		DATE:	05/29/95		
START:		05/28/95	END: 05/29/95	ELEVATION:	134.8 Ft.		
DRILLER:		Jeff Stouffer					
Depth (In Ft.)	Soil Description	Sample (In Ft.)		Blows / 6" Penetration		Rec/Att	
		No.	To	From	To		
0	2.0	Crushed stone (CRG)	1	4.5	6.0	3	4
2.0	37.0	Brown to gray to brown, dry, medium stiff to stiff, silty clay, with trace of asphalt & brick fragment (fill)	2	9.5	11.0	4	9
37.0	50.5	Brown, dry to wet, medium dense to very dense, micaceous silty sand with rock fragments from 49 Ft. to 49.6 Ft. (Decomposed to weathered rock)	3	14.5	16.0	4	4
50.5	60.5	Gray hard rock	4	19.5	21.0	2	4
			5	24.5	26.0	4	5
			6	29.5	31.0	3	4
			7	34.5	36.0	5	5
			8	39.5	41.0	5	9
			9	44.5	46.0	50/6	
			10	49.5	51.0	50/2	
			11	50.5	55.5	RQD	50%
		*Bottom 60.5 Ft.	12	55.5	60.5	RQD	41%
		*Encountered water at 42.0 Ft.					
		*Auger refusal 50.5 Ft.					
		*After 24 hours, 42.5', caved 43 Ft.					

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BORING REPORT

PROJECT:		Dalecarlia Water Treatment Plant		BORING NO.:		DC-29	
LOCATION:		5900 Mac Arthur Blvd., Brookmount, MD		DATE:		06/30/95	
START:		06/30/95		END:		06/30/95	
DRILLER:		Jeff Stouffer		ELEVATION:		134.4 Ft.	
DRILL RIG:							
Depth (In Ft.)	Soil Description		Sample (In Ft.)		Blows / 6" Penetration		Rec/ Att.
	From	To	No.	From To			
0	23.0	Brown & gray, dry to damp, medium stiff to stiff, to medium stiff, clay with layers of silty sand (fill)	1	0 1.5	3	3	4 12"
23.0	42.0	Tan, dry to wet, dense to very dense, micaceous silty sand (decomposed to weathered rock)	2	4.5 6.0	2	3	5 18"
42.0	52.0	Gray, medium to hard rock	3	9.5 11.0	3	5	8 18"
			4	14.5 16.0	2	2	4 14"
			5	19.5 21.0	4	9	12 18"
			6	21.5 26.0	10	18	20 18"
			7	29.5 31.0	15	50/5	11"
			8	34.5 36.0	50/6		6"
			9	39.5 41.0	13	50/5	9"
			10	42.0 42.1			
		*Auger refusal 42 Ft.	11	42.0 47.0	RQD	25%	1"
		*Bottom at Ft.	12	47.0 52.0	RQD	25%	54"
		*At completion water at 20 Ft. Caved 34 Ft.					60"
		*Encountered water at 40 Ft.					

Water 10.5 Ft. After 24 hours

Caved 11 Ft.

Sheet No. 1 of 1

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BORING REPORT

PROJECT: Dalecarlia Water Treatment Plant		BORING NO.: DC-30	
LOCATION: 5900 Mac Arthur Blvd., Brookmount, MD		DATE: 06/30/95	
START: 06/29/95		END: 06/30/95	
DRILLER: Jeff Stouffer		ELEVATION: 135.4 Ft.	
DRILL RIG:			

Depth (In Ft.)	Soil Description	Sample (In Ft.)		Blows / 6" Penetration	Rec/ Att			
		No.	To					
0	Brown, damp medium stiff to stiff, clay with layers of silty sand & rock fragment (fill) Gray to tan, very dense, micaceous silty sand with trace of rock fragment (decomposed to weathered rock) Gray, medium to hard rock	1	0	1.5	2	3	4	5"
23.0		2	4.5	6.0	3	5	5	6"
40.5		3	9.5	11.0	4	4	7	5"
		4	14.5	16.0	5	5	5	8"
		5	19.5	21.0	9	12	5	8"
		6	24.5	26.0	6	24	15	12"
		7	29.5	31.0	19	50/5	43	14"
		8	34.5	36.0	15	50/5		12"
		9	39.5	40.0	50/6			1"
		10	40.5	45.5	RQD	70%		54"
		11	45.5	50.5	RQD	30%		62"
	*Auger refusal 40.5 Ft.							
	*Bottom at 50.5 Ft.							
	*At completion water at 28 Ft. Caved 37 Ft.							

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BORING REPORT

PROJECT:		Dalecarlia Water Treatment Plant		BORING NO.:		DC-33		
LOCATION:		5900 Mac Arthur Blvd., Brookmount, MD		DATE:		07/18/95		
START:		07/18/95		END:		07/18/95		
DRILLER:		Paul Suit		ELEVATION:				
DRILL RIG:								
Depth (In Ft.)	Soil Description		Sample (In Ft.)		Blows / 6" Penetration	Rec/ Alt		
	From	To	No.	To				
0	23.0	Tan, dry to damp, medium stiff to very soft, silty clay with trace of brick & concrete fragments (fill)	1	0 1.5	5	8	5	10"
23.0	37.0	Tan to tan & white, dry, very loose to very dense, micaceous silty sand (decomposed rock)	2	5.0 6.5	7	8	7	16"
37.0	42.0	Gray, medium to hard rock	3	10.0 11.5	7	9	6	10"
			4	15.0 16.5	3	5	5	4"
			5	20.0 21.5	2	2	2	18"
			6	25.0 26.5	1	1	14	18"
			7	30.0 31.5	3	6	12	18"
			8	35.0 36.5	45	42	46	18"
			9	37.0 42.0	RQD	70%		60"
		*No water encountered while drilling						
		*Auger refusal 37 Ft.						
		*Bottom at 42 Ft.						

Water Dry After 24 hours

Caved 35 Ft.

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BORING REPORT

PROJECT:	Dalecarlia Water Treatment Plant	BORING NO.:	DC-34
LOCATION:	5900 Mac Arthur Blvd., Brookmount, MD	DATE:	07/19/95
START:	07/19/95	END:	07/19/95
DRILLER:	Jeff Stouffer	ELEVATION:	145.9 Ft.
		DRILL RIG:	

Depth (In Ft.)	Soil Description	Sample (In Ft.)		Blows / 6" Penetration			Rec/ Att
		No.	From	To			
0		1	0	1.5	4	4	6"
23.0	Brown, dry to damp, medium stiff, silty clay with trace of rock fragments (fill)	2	4.5	6.0	3	3	10"
33.0	Tan, dry, very dense, micaceous silty sand (decomposed to weathered rock)	3	9.5	11.0	3	3	18"
	Gray, medium to hard, rock	4	14.5	16.0	6	5	9"
		5	19.5	21.0	2	3	3"
		6	24.5	26.0	5	25	18"
		7	29.5	31.0	27	50/3	10"
		9	33	33.0	51/0"		0"
		10	33	38.0	RQD	73%	57"
	*Bottom 38.0 Ft.						
	*Auger refusal at 33.0 Ft.						
	*No water encountered while drilling						
	*After 24 hours, water at 17.5 Ft., caved at 19 Ft.						

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BORING REPORT

PROJECT:		Dalecarlia Water Treatment Plant		BORING NO.:	DC-47				
LOCATION:		5900 Mac Arthur Blvd., Brookmount, MD		DATE:	02/17/95				
START:		07/17/95	END:	07/17/95	ELEVATION:	144.7 Ft.			
DRILLER:		Jeff Stouffer				DRILL RIG:			
Depth (In Ft.)	Soil Description		Sample (In Ft.)		Blows / 6" Penetration		Rec/Att		
	From	To	No.	From	To				
0	22.0	Tan, dry, loose to medium dense to loose, silty sand (fill)	1	0	1.5	2	3	4	6
22.0	27.0	Tan, dry, stiff, silty clay (possible fill)	2	4.5	6.0	3	7	14	12
27.0	53.0	Tan, dry, medium dense to very dense to medium dense, silty sand with trace of rock fragments	3	9.5	11.0	3	8	5	10
53.0	58.0	Gray, soft rock with void from 54 Ft. to 55 Ft.	4	14.5	16.0	6	6	6	6
58.0	63.0	Gray, very soft weathered to decomposed rock	5	19.5	21.0	6	4	7	8
			6	24.5	26.0	6	5	14	12
			7	29.5	31.0	8	9	3	8
			8	34.5	36.0	10	10		7
			9	39.5	41.0	4	4	5	8
			10	44.5	46.0	10	9	9	16
			11	49.5	51.0	11	9	9	6
		*Bottom 63.0 Ft.	12	53.0	53.0	51/6"			0
		*Encountered water at 53.0 Ft.	13	53.0	58.0	RQD	25%		32"
		*After 24 hours caved 45 Ft., dry	14	58.0	63.0	RQD	0%		9"

Water 49.0 Ft. at completion

Caved 51.0 Ft.

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BORING REPORT

PROJECT: Dalecarlia Water Treatment Plant - Phase II		BORING NO.: SWM-1							
LOCATION: 5900 Mac Arthur Blvd., Brookmount, MD		DATE: 10/2/95							
START: 10/2/95 END: 10/2/95		ELEVATION:							
DRILLER: Paul Suit		DRILL RIG:							
Depth (In Ft.)	Soil Description	Sample (In Ft.)		Blows / 6" Penetration	Rec/ Att				
		No.	To						
0	2	Brow, dry medium stiff silty clay with trace of sand (fill)	1	0	1.5	1	3	6	6"
2	14	Tan, dry, medium dense sand with trace of clay and gravel and trace of brick fragments (fill)	2	2.5	4.0	5	6	5	8"
14	44	Brown to gray to tan, dry, medium dense to dense, clayey sand, (with trace of roots and trace of silt) (fill)	3	5.0	6.5	4	8	6	10"
44	54	Grayish tan to tan, wet to dry, loose to very dense, micaceous silty sand (decomposed rock)	4	10.0	11.4	5	11	5 1/4"	12"
			5	15.0	16.5	30	6	9	12"
			6	20.0	21.5	9	13	18	16"
			7	25.0	26.5	12	9	14	18"
			8	30.0	31.5	10	10	12	10"
			9	35.0	36.5	7	10	12	18"
		WR&A Note: Odors from 15 feet to 20 feet depth.	10	40.0	40.6	30	5 1/1"		5"
			11	45.0	46.5	4	3	4	18"
		*Strong petroleum odor on Sample No. 5	12	50.0	50.3	5 1/4"			3"
		*Encountered water at 45 Ft.	13	54.0	54.1	5 1/1"			1"
		*Bottom 54.0 Ft.							

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 7050 CHESAPEAKE ROAD, SUITE 205
 HYATTSVILLE, MD 20784
 PHONE (301) 306-9677 FAX (301) 306-9632

BORING REPORT

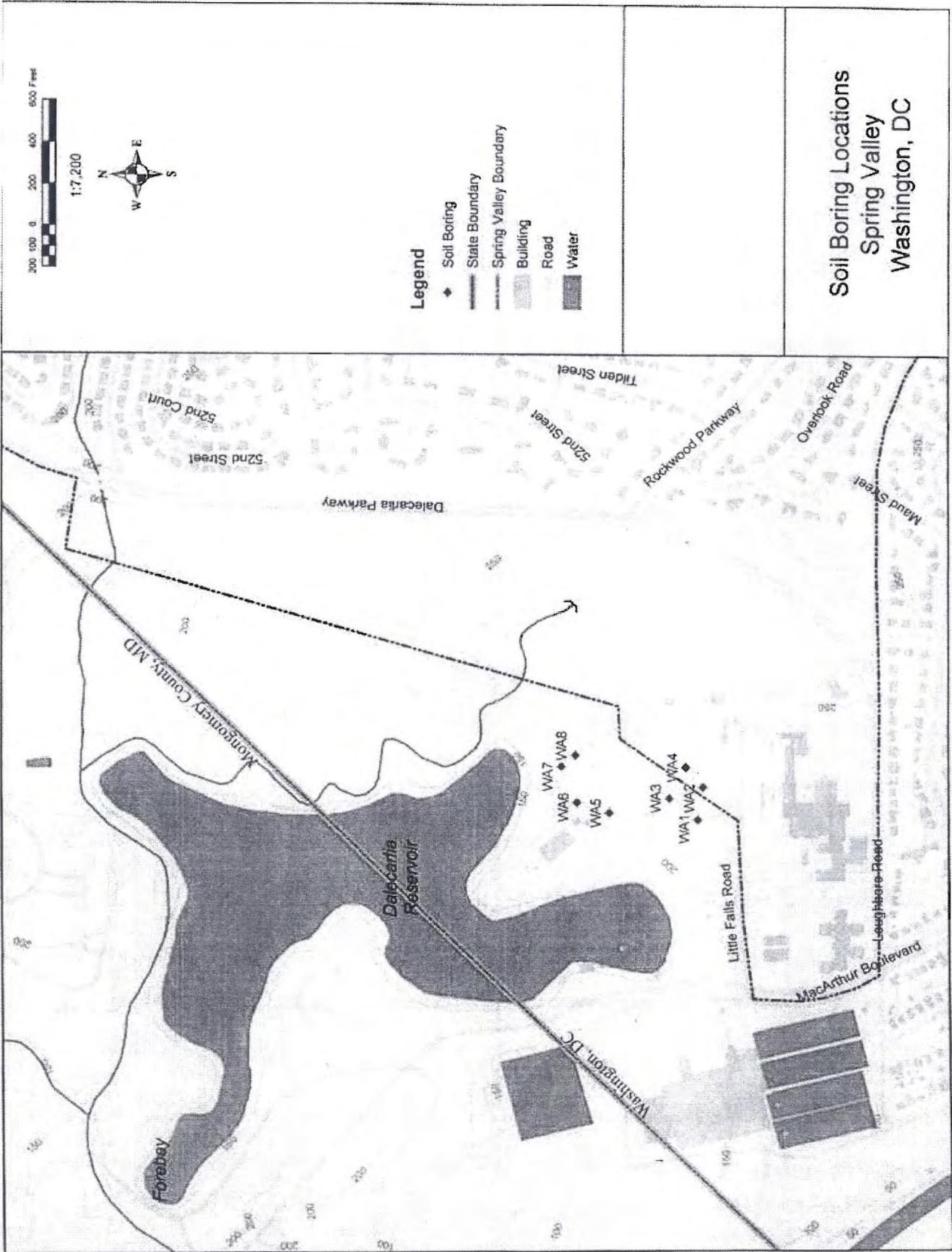
PROJECT:		Dalecarlia Water Treatment Plant - Phase II		BORING NO.:		SWM-2				
LOCATION:		5900 Mac Arthur Blvd., Brookmount, MD		DATE:		10/2/95				
START:		10/2/95	END:	10/2/95	ELEVATION:					
DRILLER:		Paul Suit		DRILL RIG:						
Depth (In Ft.)		Soil Description		Sample (In Ft.)		Blows / 6" Penetration		Rec/ Att		
From	To	No.	From	To						
0	2		Brow, dry soft, silty clay (fill)	1	0	1.5	2	2	3	7"
2	4.5		Tan, dry, medium dense, silty sand (fill)	2	2.5	4.0	5	5	6	16"
4.5	35.44		Brown and gray, dry, very stiff to stiff to very stiff clay with a little roots, brick and asphalt fragments and trace of sand (fill)	3	5.0	6.5	3	6	10	18"
				4	10.0	11.5	5	7	7	18"
				5	15.0	16.5	6	10	14	18"
				6	20.0	21.5	1	5	7	14"
				7	25.0	26.5	14	7	7	18"
				8	30.0	31.5	10	13	15	18"
				9	35.0	35.2	51/3"			1"
			*Hit obstruction at 35.0 Ft.							
			*No water encountered							
			*Bottom 35.0 Ft.							

GEOMATRIX, INC.
 7050 CHESAPEAKE ROAD, SUITE 205
 HYATTSVILLE, MD 20784
 PHONE (301) 306-9677 FAX (301) 306-9632

BORING REPORT

PROJECT:		Dalecarlia Water Treatment Plant - Phase II		BORING NO.:		SWM-3			
LOCATION:		5900 Mac Arthur Blvd., Brookmount, MD		DATE:		10/3/95			
START:		10/3/95	END:	10/3/95	ELEVATION:				
DRILLER:		Paul Suit		DRILL RIG:					
Depth (In Ft.)	Soil Description		Sample (In Ft.)		Blows / 6" Penetration		Rec/Att		
	From	To	No.	From	To				
0	7.0	Brown to tan, dry, loose to dense, silty sand with trace of gravel (fill)	1	0	1.5	1	4	6	8"
7.0	38.0	Brown, dry to moist, stiff to very stiff to medium stiff, silty clay with trace of roots and brick fragments (fill)	2	2.5	4.0	10	12	13	12"
38.0	43.0	Gray, dry, medium dense, silty sand (possible fill)	3	5.0	6.5	32	24	12	14"
43.0	49.0	Tan, dry, dense, micaceous silty sand with trace of rock fragments	4	10.0	11.5	4	4	7	10"
			5	15.0	16.5	4	5	7	12"
			6	20.0	21.5	4	4	12	12"
			7	25.0	26.5	4	12	13	12"
			8	30.0	31.5	2	2	5	12"
			9	35.0	36.4	4	4	5 1/4"	16"
			10	40.0	41.5	6	11	12	10"
			11	45.0	46.5	6	17	19	18"
		*No water encountered	12	49.0	49.0	51/0"			0"
		*Auger refusal 49.0 Ft.							
		*Bottom 49.0 Ft.							

**SOIL BORING INFORMATION FOR EAST DALECARLIA
PROCESSING SITE**



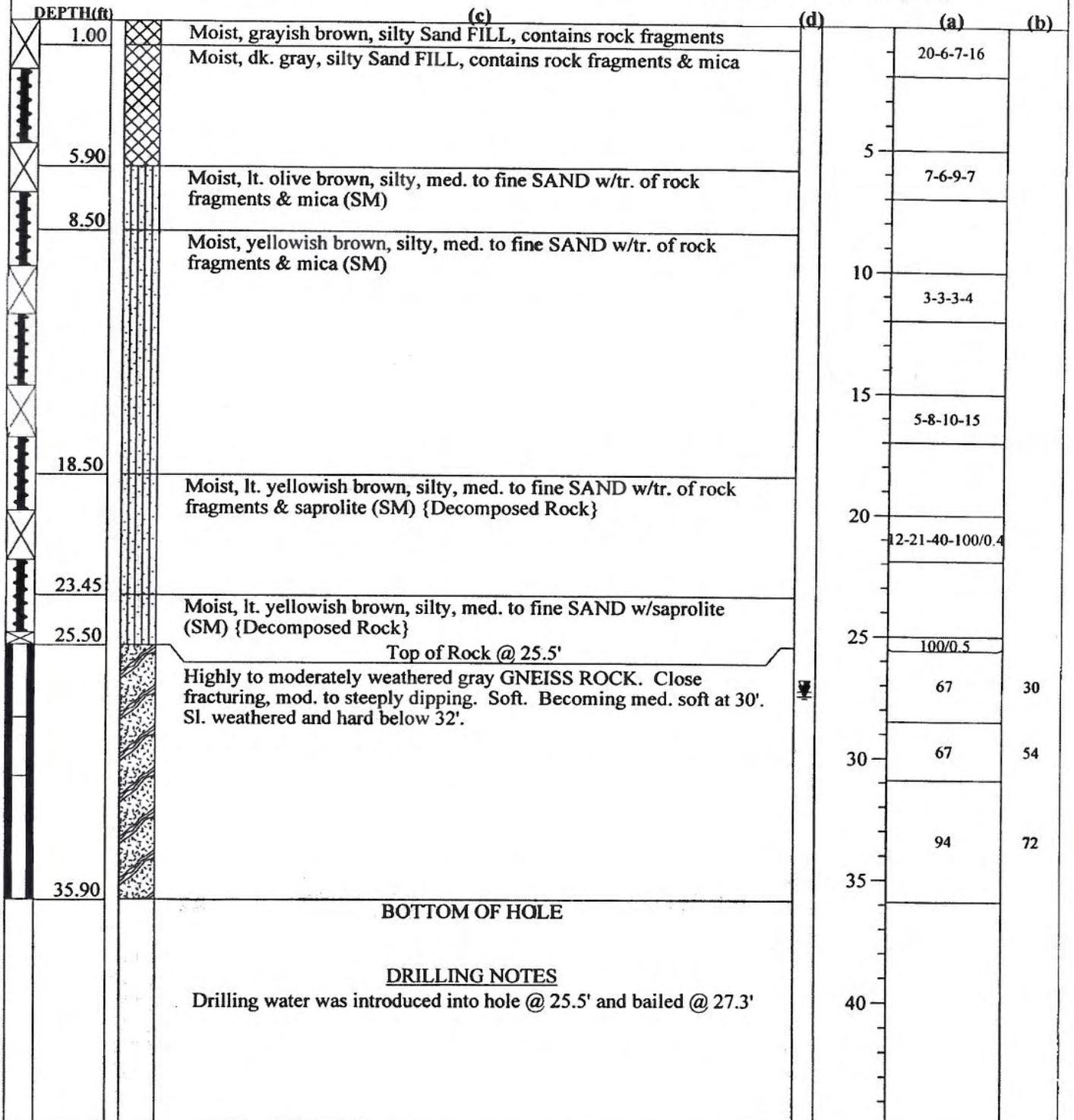
STA.
 OFFSET:
 TOP ELEV: 216.2

RESIDUALS PROCESSING FACILITY
 WASHINGTON, D.C.

N 463023.50
 E 1281304.10
 COMPLETED: March 1, 2005

WA-1

1 of 1



WA-1
 GROUNDWATER DATA
 WHILE DRILLING: NE
 ON COMPLETION: 27.3
 24 Hr. READING: 27.5

- Fill
- Auger
- SPT
- RB
- Cored
- 300 lb
- Tubex
- Hand
- Fish Tail
- Vibra Core
- Water Jet
- Odex

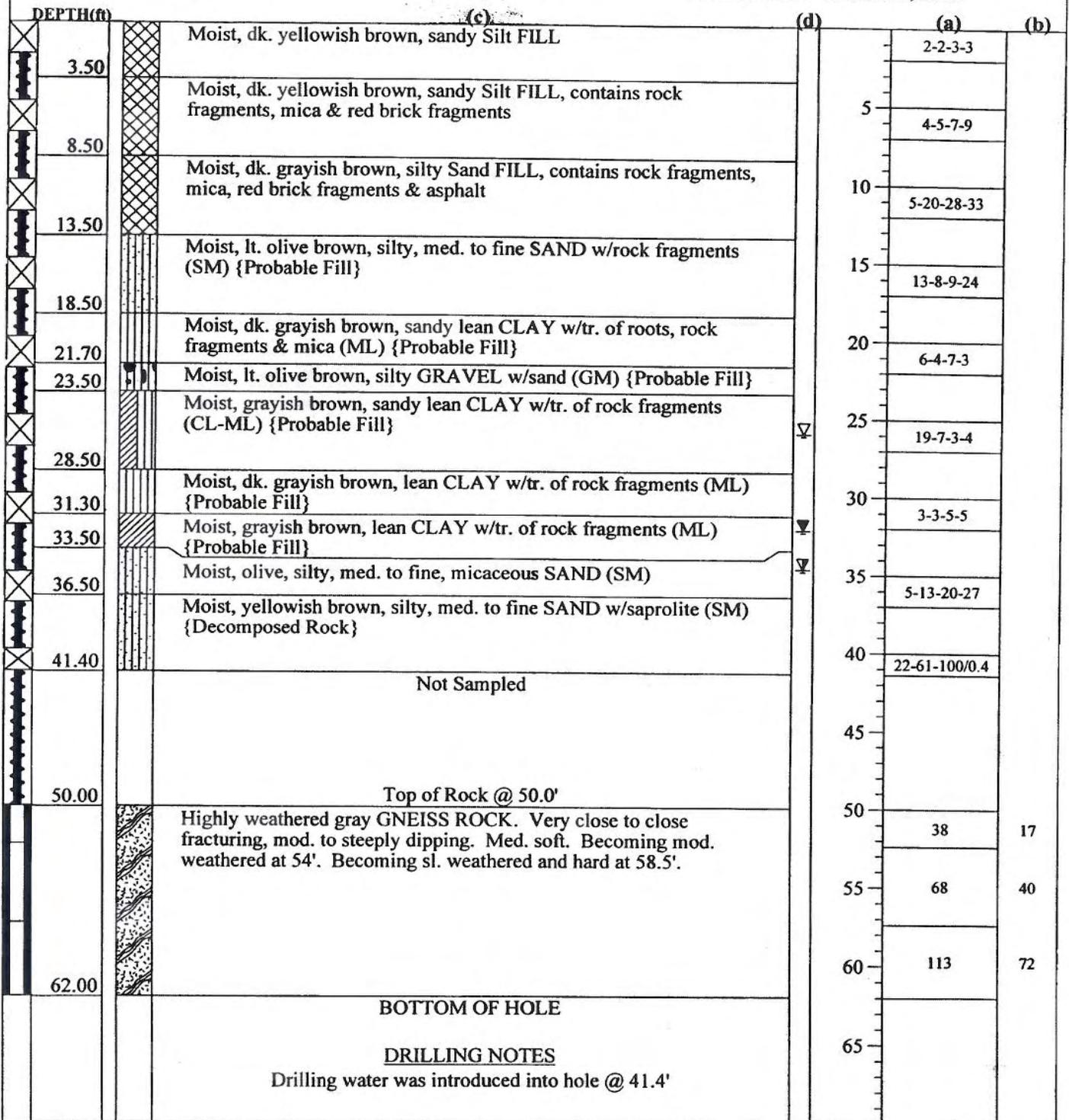
GEO-2 DC018 L.C.J. /1505 5:17

STA. I
 OFFSET:
 TOP ELEV: 221.6

N 462998.10
 E 1281463.40
 COMPLETED: March 15, 2005

WA-2

1 of 1



WA-2
 GROUNDWATER DATA

∇ WHILE DRILLING: 26.0
 ∇ ON COMPLETION: 34.7
 ∇ 24 Hr. READING: 32.2

- Fill
- Auger
- SPT
- RB
- Cored
- 300 lb
- Tubex
- Hand
- Fish Tail
- Vibra Core
- Water Jet
- Odex

STA.
 OFFSET:
 TOP ELEV: 217.2

RESIDUALS PROCESSING FACILITY
 WASHINGTON, D.C.

N 463155.10
 E 1281408.00
 COMPLETED: March 4, 2005
 WA-3
 1 of 1

DEPTH(ft)	(c)	(d)	(a)	(b)
6.60	Moist, dk. yellowish brown, sandy Silt FILL, contains rock fragments, mica & red brick fragments		1-1-1-2	
11.00	Moist, yellowish brown, silty Sand FILL, contains rock fragments, mica & red brick fragments		2-7-14-9	
13.50	Moist, reddish brown, silty Gravel Fill, contains sand, asphalt & red brick fragments		10-10-6-14	
15.90	Moist, dk. yellowish brown, silty Sand FILL, contains rock fragments & red brick fragments		10-50-55-13	
20.20	Moist, lt. olive brown, silty, med. to fine SAND w/rock fragments & saprolite (SM) {Decomposed Rock}	▼		
21.80	Sl. weathered gray GNEISS ROCK. Hard. No fracturing information possibly due to poor recovery. No Recovery		100/0.2 44	0
26.80			0	0
29.40	Moist, yellowish brown, clayey, fine SAND w/tr. of rock fragments & mica (SC)		1-2-5-21 3-5-9-10	
31.50	Moist, brownish yellow, sandy lean CLAY w/tr. of rock fragments (CL)	▼		
33.50	Wet, lt. yellowish brown, clayey, coarse to fine SAND w/rock fragments (SC) Wet, yellowish brown, silty, med. to fine SAND (SM)		2-3-10-12	
38.50				
42.00	Wet, olive gray, silty, med. to fine SAND (SM)		3-5-6-9	
BOTTOM OF HOLE				
<u>DRILLING NOTES</u> Drilling water was introduced into hole @ 20.2'. EZ-Mud introduced @ 20.2'. Water & roller bit used in place of augering for remainder of hole. Between Completion & the 24 Hr. reading, it rained & snowed heavily. Layer of rock encountered @ 20.20'. Cored from 20.20' to 26.80'. Return to HSA sampling from 26.8' to BOH.				

WA-3
 GROUNDWATER DATA
 WHILE DRILLING: NE
 ▼ ON COMPLETION: 31.5
 ▼ 24 Hr. READING: 16.7

-  Fill
  Auger
  SPT
  RB
-  Cored
  300 lb
  Tubex
  Hand
-  Fish Tail
  Vibra Core
  Water Jet
  Odex

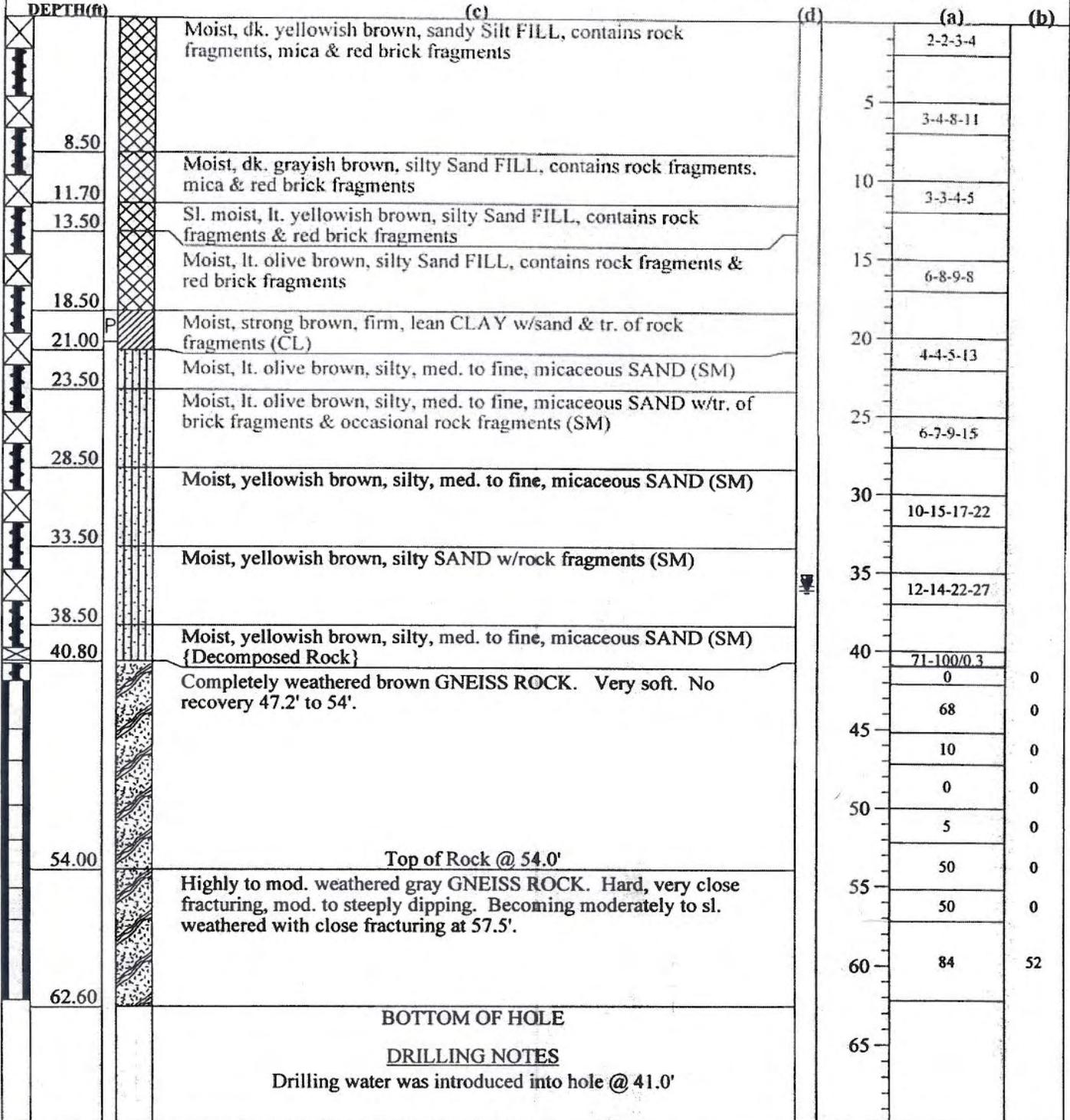
GEO-2 DC018 G.J. /15/05 15:17

STA.
 OFFSET:
 TOP ELEV: 223.4

RESIDUALS PROCESSING FACILITY
 WASHINGTON, D.C.

N 463078.60
 E 1281558.30
 COMPLETED: March 10, 2005

WA-4
 1 of 1



GEO-2, DC018 GPJ 71 505 5

WA-4
 GROUNDWATER DATA
 WHILE DRILLING: NE
 ON COMPLETION: 35.9
 24 Hr. READING: 36.2

WA-4A (3/15/05)
 GROUNDWATER DATA
 WHILE DRILLING:
 ON COMPLETION:
 Hr. READING:

P - indicates pressed Shelby tube sample obtained from an additional boring.

- Fill
- Auger
- SPT
- RB
- Cored
- 300 lb
- Tubex
- Hand
- Fish Tail
- Vibra Core
- Water Jet
- Odex

STA.
 OFFSET:
 TOP ELEV: 195.5

RESIDUALS PROCESSING FACILITY
 WASHINGTON, D.C.

N 463435.00
 E 1281337.60
 COMPLETED: March 1, 2005
 WA-5
 1 of 1

DEPTH(ft)	(c)	(d)	(a)	(b)
3.50	Moist, dk. grayish brown, silty, coarse to fine SAND w/rock fragments & tr. of mica (SM)		13-15-22-11	
8.50	Moist, lt. yellowish brown, silty, med. to fine, micaceous SAND w/tr. of rock fragments (SM)		9-11-11-17	
11.50	Moist, lt. yellowish brown, silty, med. to fine, micaceous SAND (SM)		18-21-26-41	
	Moist, lt. yellowish brown, silty, med. to fine, SAND (SM) {Decomposed Rock}		55-92-100/0.5	
			0	0
			100/0.4	
			0	0
			0	0
	Top of Rock @ 23.9'			
	Highly to moderately weathered brown GNEISS ROCK, Very soft. Becoming soft at 26'.		53	0
			29	0
			69	0
			62	41
	Sl. to unweathered gray GNEISS ROCK. Hard to v. hard. Close to mod. close fracturing, mod. to steeply dipping.		115	95
			94	56
40.90				
	BOTTOM OF HOLE			
	DRILLING NOTES			
	Drilling water was introduced into hole @ 16.5' and bailed @ 33.1'			

1.15:17

GE

- Fill
- Auger
- SPT
- RB
- Cored
- 300 lb
- Tubex
- Hand
- Fish Tail
- Vibra Core
- Water Jet
- Odex

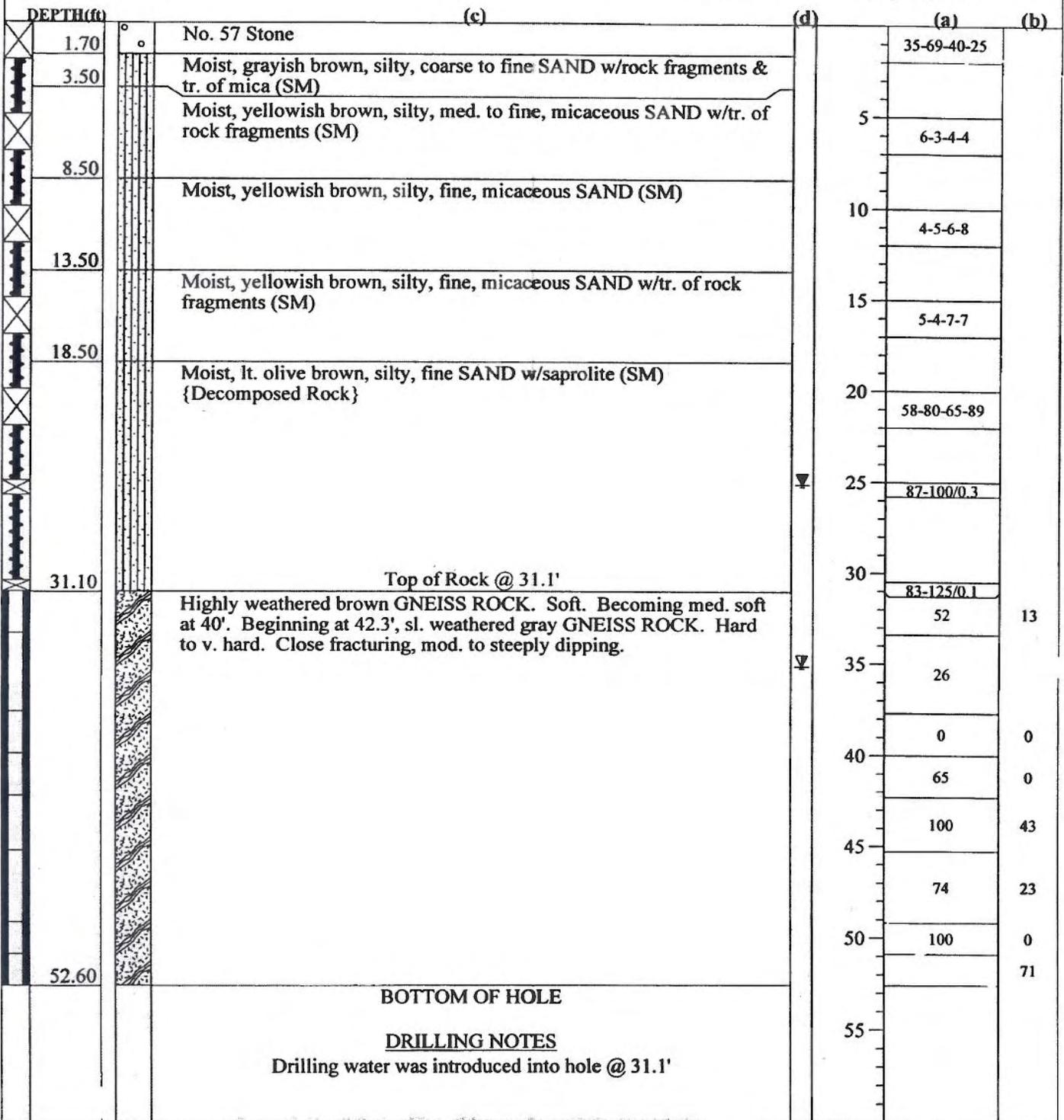
STA. OFFSET:
TOP ELEV: 191.7

RESIDUALS PROCESSING FACILITY
WASHINGTON, D.C.

N 463583.70
E 1281388.20

WA-6
1 of 1

COMPLETED: February 23, 2005



WA-6
GROUNDWATER DATA

▽ WHILE DRILLING: 35.2
▽ ON COMPLETION: 35.2
▽ 24 Hr. READING: 25.2

- ☉ Fill
- ⊞ Auger
- ⊗ SPT
- ⊞ RB
- ⊞ Cored
- ⊗ 300 lb
- ⊞ Tubex
- ⊞ Hand
- ⊞ Fish Tail
- ⊞ Vibra Core
- ⊞ Water Jet
- ⊞ Odex

STA.
 OFFSET:
 TOP ELEV: 189.8

RESIDUALS PROCESSING FACILITY
 WASHINGTON, D.C.

N 463654.10
 E 1281561.50
 COMPLETED: February 24, 2005
 WA-7
 1 of 1

DEPTH(ft)	(c)	(d)	(a)	(b)
3.50	Moist, dk. yellowish brown, sandy Silt FILL, contains rock fragments & mica		4-5-7-12	
8.50	Moist, yellowish brown, sandy lean Clay FILL, contains mica		6-6-8-8	
13.50	Moist, yellowish brown, sandy lean Clay FILL, contains rock fragments & red brick fragments		4-5-5-6	
18.50	Moist, yellowish brown, clayey Sand FILL, contains rock fragments, mica & red brick fragments		2-3-2-4	
23.50	Moist, grayish brown, silty, fine, micaceous SAND w/tr. of rock fragments (SM) {Probable Fill}		6-9-8-7	
28.50	Moist, yellowish brown, clayey, coarse to fine, micaceous SAND w/rock fragments (SC) {Probable Fill}		7-5-18-15	
38.50	Moist, olive to olive gray, silty, med., micaceous SAND w/tr. of brick fragments & rock fragments (SM)		2-3-6-10	
42.00	Moist, lt. olive brown, silty, med. to fine, micaceous SAND w/tr. of rock fragments (SM) {Decomposed Rock}		3-10-20-40	
	BOTTOM OF HOLE			
	<u>Notes:</u> WA-7A (3/11/05) - Location moved 3' North of WA-7. A 2' shelby was pushed starting @ 30' using rig hydraulics. WA7-B (3/16/05) - Location moved 1.5' North of WA-7. A 4' shelby was pushed starting @ 29' using rig hydraulics.			

WA-7
 GROUNDWATER DATA
 WHILE DRILLING: NE
 ON COMPLETION: NE
 ▽ 24 Hr. READING: 38.2

WA-7A / 7B (3/11/05 & 3/16/05)
 GROUNDWATER DATA
 WHILE DRILLING:
 ON COMPLETION:
 Hr. READING:

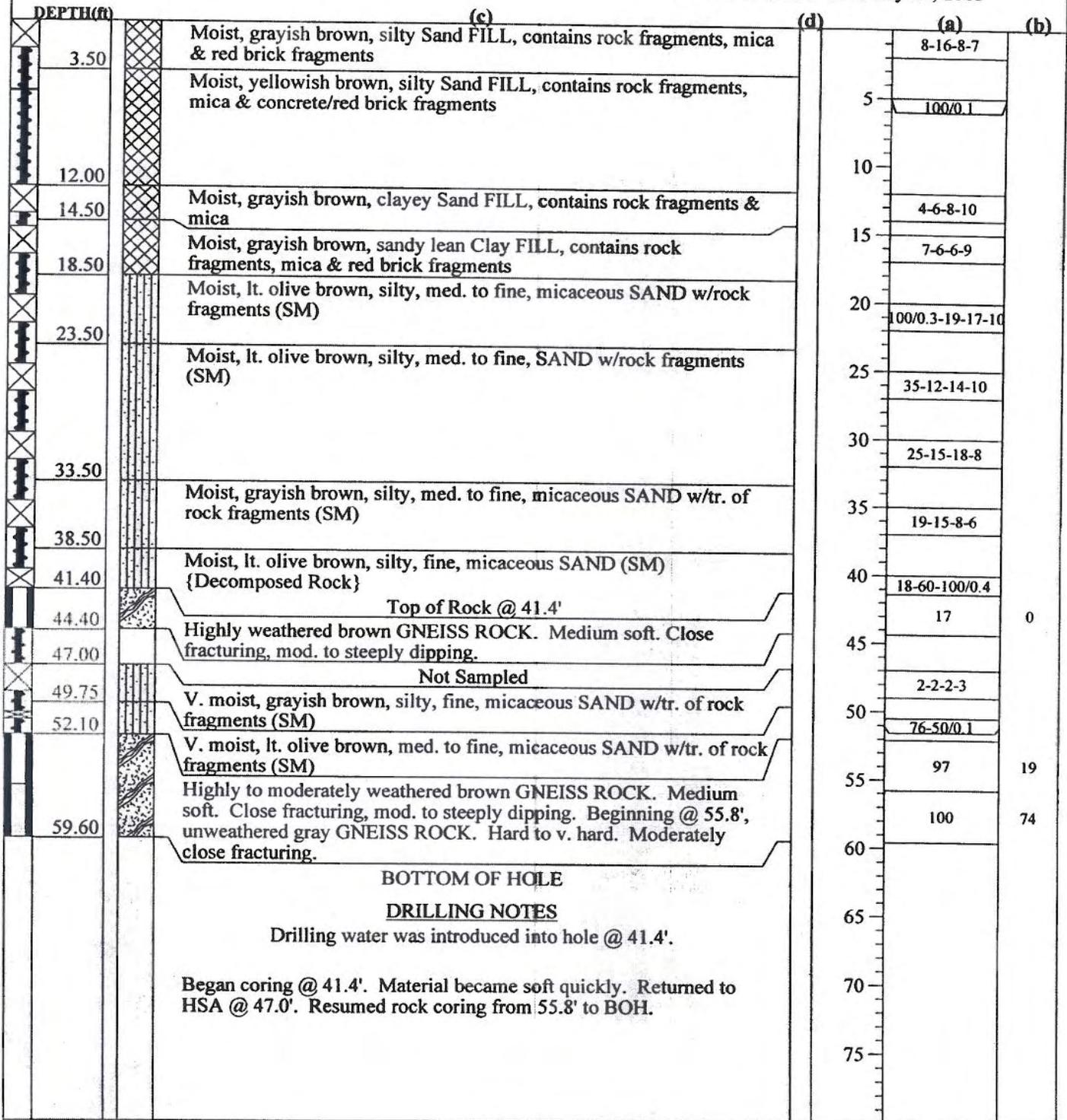
P - indicates pressed shelby tube sample obtained from an additional boring.

Fill	Auger	SPT	RB
Cored	300 lb	Tubex	Hand
Fish Tail	Vibra Core	Water Jet	Odex

STA.
OFFSET:
TOP ELEV: 190.8

RESIDUALS PROCESSING FACILITY
WASHINGTON, D.C.

N 463590.80
E 1281615.60
COMPLETED: February 26, 2005
WA-8
1 of 1



BOTTOM OF HOLE

DRILLING NOTES

Drilling water was introduced into hole @ 41.4'.

Began coring @ 41.4'. Material became soft quickly. Returned to HSA @ 47.0'. Resumed rock coring from 55.8' to BOH.

WA-8
GROUNDWATER DATA

WHILE DRILLING: NE
ON COMPLETION: NT
24 Hr. READING: NT

- Fill
- Auger
- SPT
- RB
- Cored
- 300 lb
- Tubex
- Hand
- Fish Tail
- Vibra Core
- Water Jet
- Odex

LABORATORY TEST RESULTS

PROJECT: Residuals Processing Facility
Washington Aqueduct Division
AREA: Washington, DC

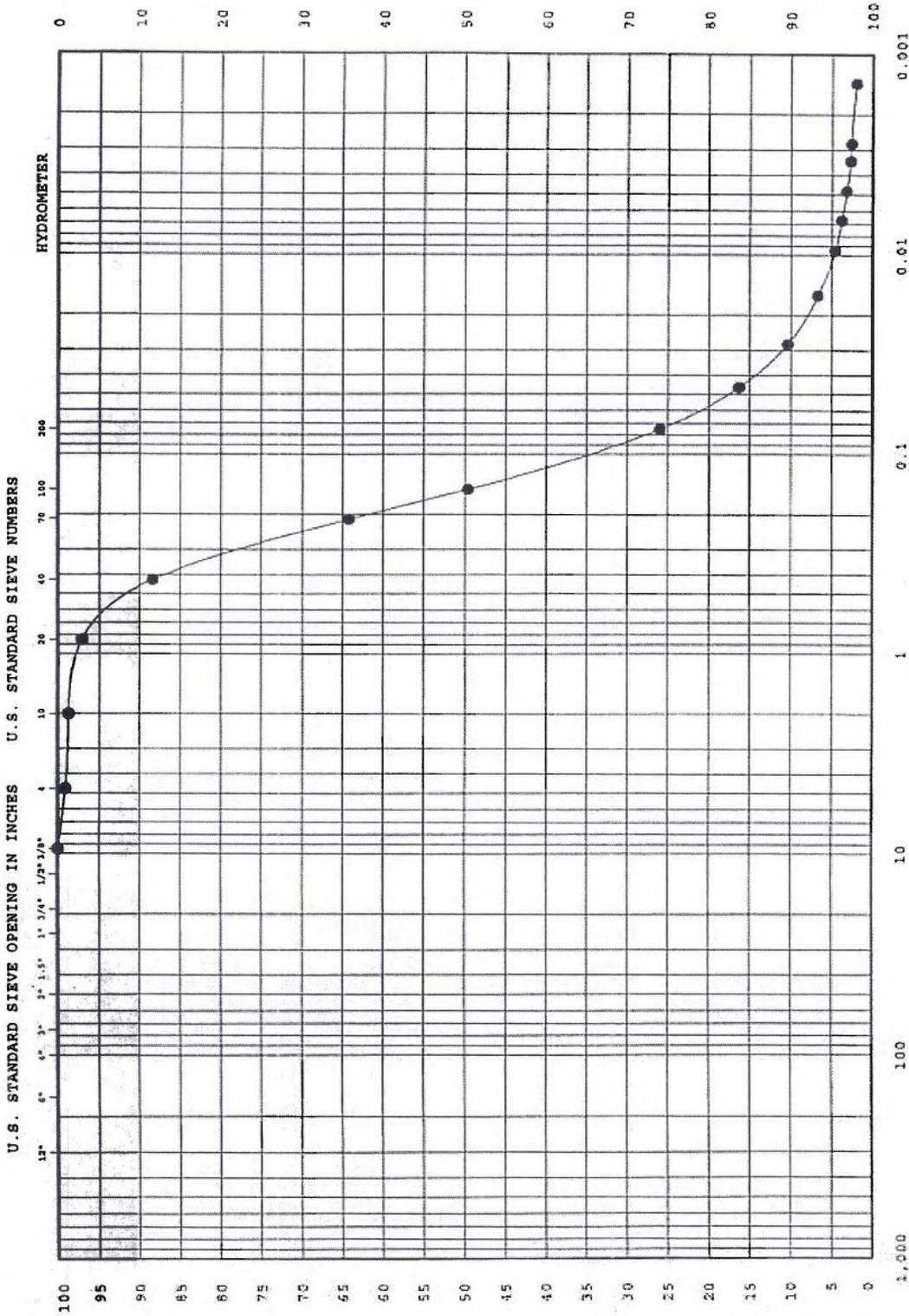
DATE: Jul.2005

TEST: Natural Moisture Contents (ASTM D 2216) & Atterberg Limits (ASTM D 4318)

<u>Hole No.</u>	<u>Sample No.</u>	<u>Depth (ft.)</u>	<u>Moisture Content, %</u>	<u>LL</u>	<u>PL</u>	<u>PI</u>	<u>Classification</u>	<u>Symbol</u>
WA-2	Jar-2	5.0-7.0	21.4	35	23	12	Lean Clay	CL
WA-2	Jar-5	20.0-21.7	26.5	43	28	15	Silt	ML
WA-2	Jar-7	25.0-27.0	20.7	26	19	7	Silty-Clay	CL-ML
WA-2	Jar-8	30.0-31.3	25.1	36	25	11	Silt	ML
WA-3	Jar-2	5.0-6.6	31.4	49	30	19	Silt	ML
WA-3	Jar-10	30.0-31.5	19.2	33	19	14	Lean Clay	CL
WA-4	Jar-6	20.0-21.0	27.2	33	22	11	Lean Clay	CL
WA-7	Jar-3	10.0-12.0	16.5	28	19	9	Lean Clay	CL
WA-8	Jar-4	15.0-17.0	18.0	32	21	11	Lean Clay	CL

Note: The Atterberg Limits test is only performed on minus No. 40 material portion of a sample and does not represent the entire sample. Refer to the Visual Classification or the Gradation Analysis for the complete classification.

PERCENT COARSER BY WEIGHT



PERCENT FINER BY WEIGHT

COBBLES		GRAVEL			SAND			SILT or CLAY		
Sample No.	Depth (ft)	Classification (ASTM D 2487)	Nat wch	LL	PL	PI				
Jan-7	20.0-21.9	SILTY SAND	SM							

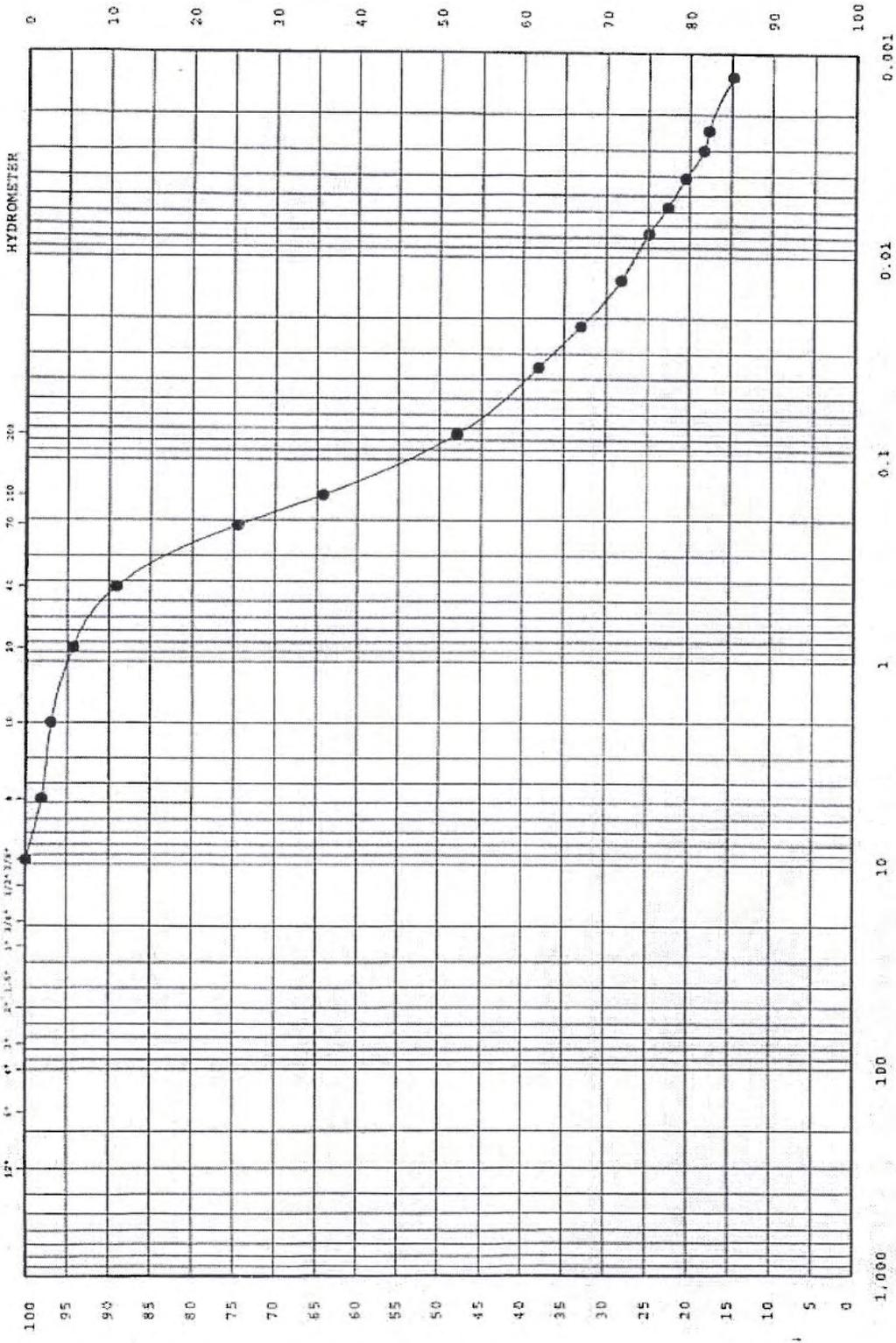
PROJECT: Residuals Processing Facility
 AREA: Washington Aqueduct Division
 Washington, DC

BORING NO.: WA-1
 DATE: Apr 2005

REMARKS

ENG YORK BRIDGE/WASH AQUEDUCT-BESTD PRDC FAC. OPT
 GRADATION CURVES TEST METHODS: ASTM D 422, D4318, D2216

U.S. STANDARD SIEVE OPENING IN INCHES U.S. STANDARD SIEVE NUMBERS



GRAIN SIZE IN MILLIMETERS

COBBLES	GRAVEL			SAND			SILT or CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		

Legend	Sample No.	Depth (ft)	Classification (ASTM D 2487)	Nat w	LL	FL	PI
●	JAF-9	25.5-25.8	CLAYEY SAND	SC			

PROJECT: Residuals Processing Facility
 AREA: Washington Aqueduct Division
 Washington, DC

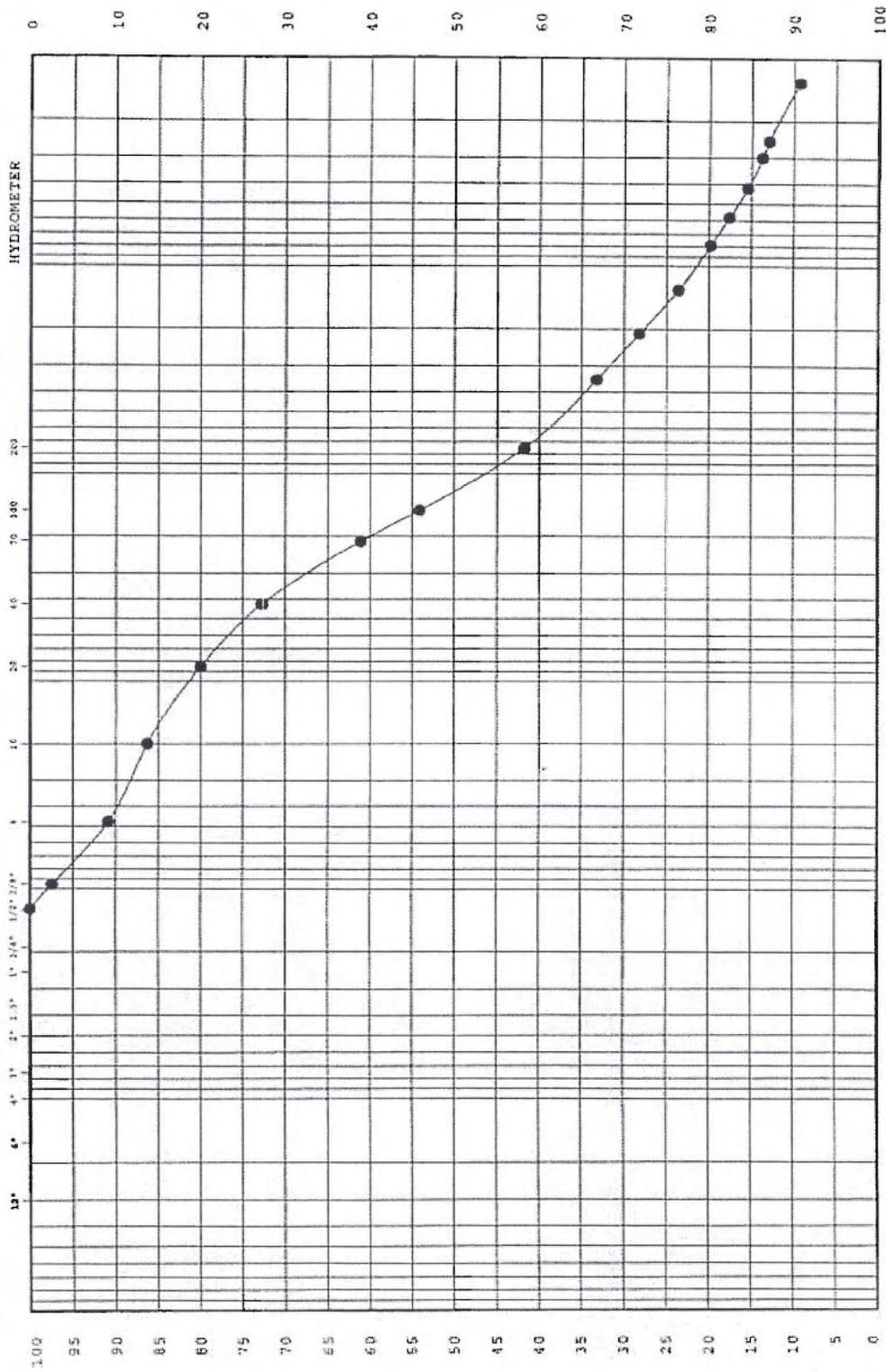
BORING NO.: WA-3

DATE: Apr 2005

REMARKS

ERG FORM ENG2 DENNASH AQUEDUCT-RESID PROC FAC.DP2 GRADATION CURVES TEST METHODS: ASTM D 422, D4318, D2216

PERCENT COARSER BY WEIGHT



PERCENT FINER BY WEIGHT

U.S. STANDARD SIEVE OPENING IN INCHES U.S. STANDARD SIEVE NUMBERS

HYDROMETER

GRAIN SIZE IN MILLIMETERS

COBBLES	GRAVEL		SAND			SILT or CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

Legend	Sample No.	Depth (ft)	Classification (ASTM D 3487)	Mat wt	LL	PL	PI
●	Jax-3	10.0-11.7	SILTY SAND	SM			

PROJECT: Residuals Processing Facility
 AREA: Washington Aqueduct Division
 Washington, DC

BORING NO.: WA-4

DATE: Apr 2005

REMARKS:

ENG FORM ENR2087MASH AQUEDUCT-RESID-PROC PAC.GPJ TEST METHODS: ASTM D 422, D4318, D2216

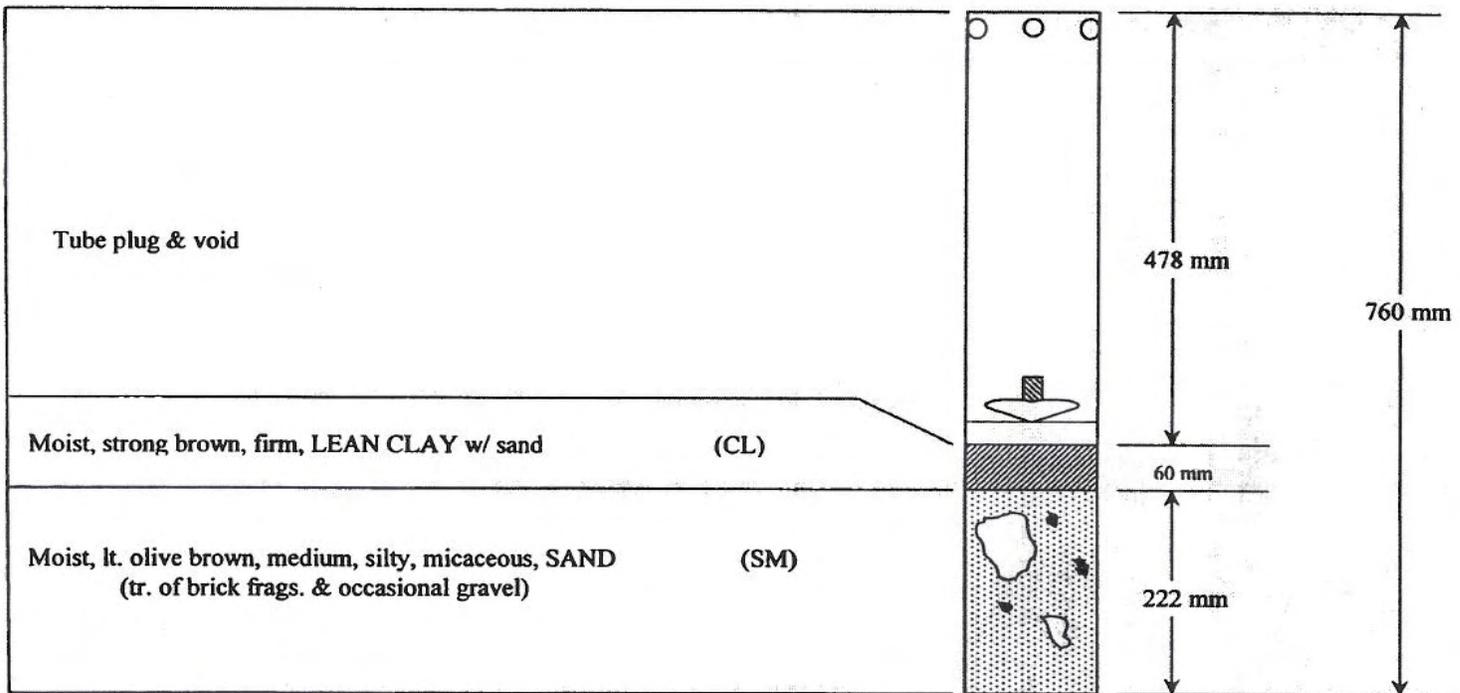
TUBE CLASSIFICATION

ASTM D2487

PROJECT: Residuals Processing Facility
Washington Aqueduct Division
AREA: Washington, DC

DATE: Apr 2005

Hole No.	Sample No.	Depth (ft)
WA-4A	Shelby-1	18.5-20.5



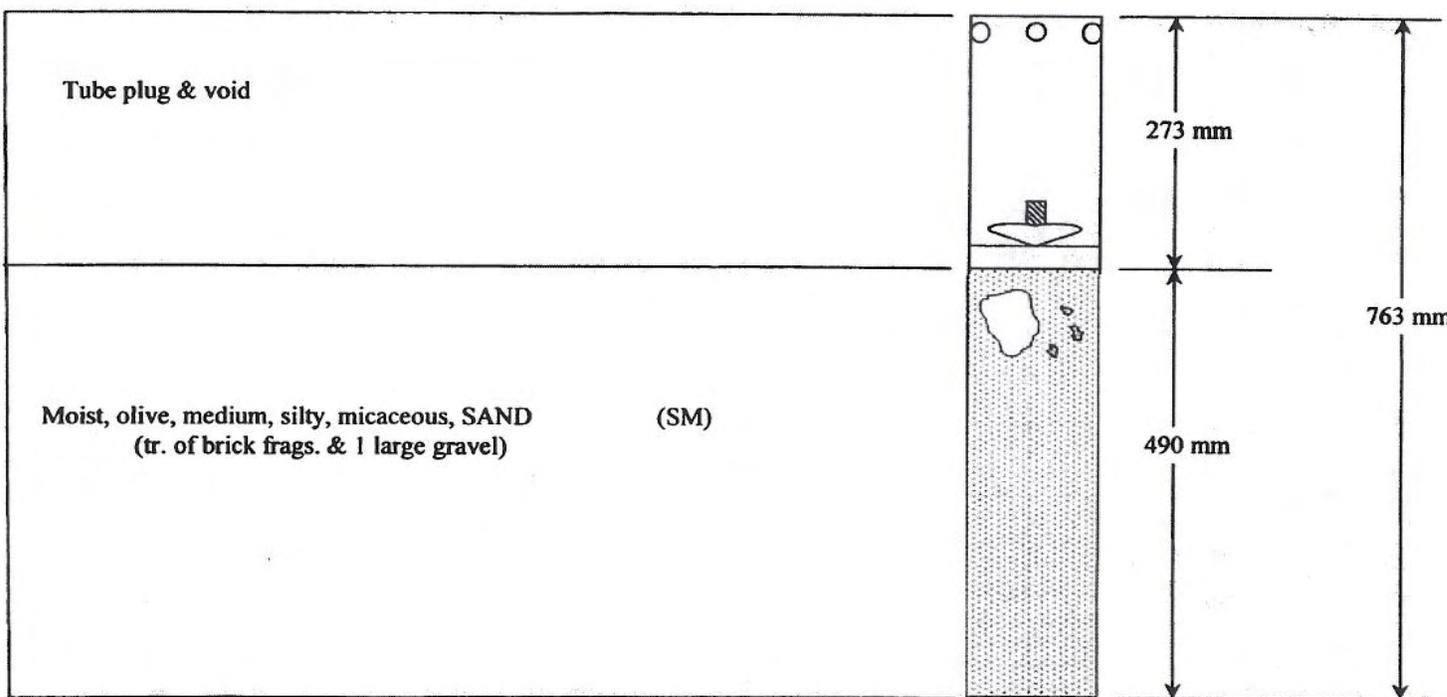
TUBE CLASSIFICATION

ASTM D2487

PROJECT: Residuals Processing Facility
Washington Aqueduct Division
AREA: Washington, DC

DATE: Apr 2005

Hole No.	Sample No.	Depth (ft)
WA-7A	Shelby-1	30.0-32.0



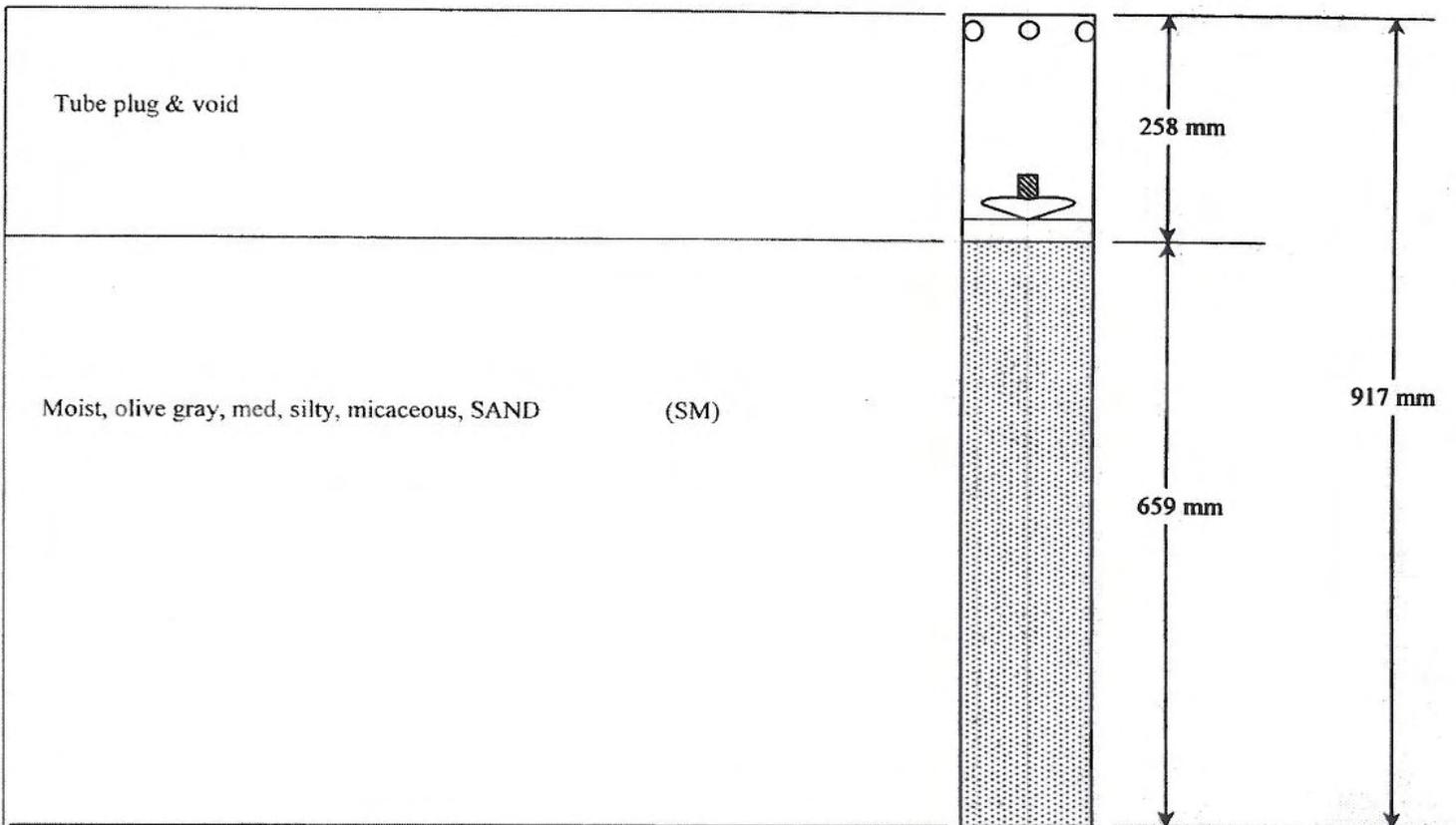
TUBE CLASSIFICATION

ASTM D2487

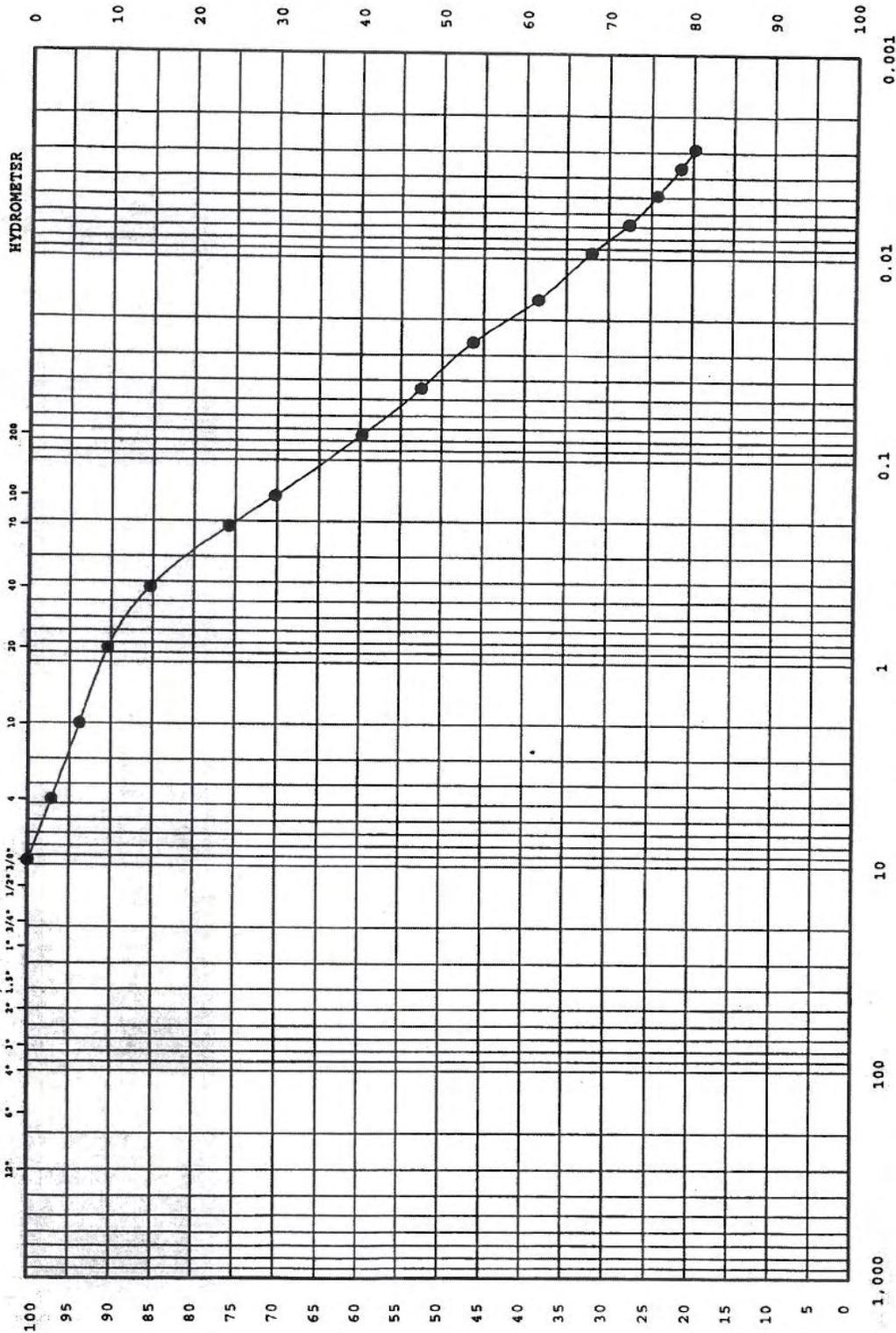
PROJECT: Residuals Processing Facility
Washington Aqueduct Division
Washington, DC

DATE: Apr 2005

Hole No.	Sample No.	Depth (ft)
WA-7B	Shelby-1	29.0-32.0



U.S. STANDARD SIEVE OPENING IN INCHES U.S. STANDARD SIEVE NUMBERS



PERCENT FINER BY WEIGHT

PERCENT COARSER BY WEIGHT

GRAIN SIZE IN MILLIMETERS

COBBLES	GRAVEL			SAND			SILT or CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE		

Legend	Sample No.	Depth (ft)	Classification (ASTM D 2487)	Nat wct	LL	PL	PI
●	Jar-4	15.0-17.0	SANDY LEAN CLAY	18.0	32	21	11

PROJECT: Residuals Processing Facility
 AREA: Washington Aqueduct Division
 Washington, DC

REMARKS

BORING NO.: WA-8

GRADATION CURVES TEST METHODS: ASTM D 422, D4318, D2216

DATE: Apr 2005

ENG FORM ENG-2087MARN ADOBE/ENCT-REBID ENOC PAC 01/02

**US ARMY, CORPS OF ENGINEERS - BALTIMORE DISTRICT - MATERIALS & INSTRUMENTATION UNIT
TEST REPORT**

PROJECT: Washington Aqueduct Division
AREA: Residuals Processing Facility
 Washington, DC
DATE: Apr 2005

TEST: SPLITTING TENSILE STRENGTH OF INTACT ROCK CORE SPECIMENS & UNIT WEIGHT

References: ASTM D 3967 Splitting Tensile Strength of Intact Rock Core Specimens
 RTH 109-93 Method of Determining Effective (As Received) and Dry Unit Weights of Rock Cores

HOLE NO.	SPECIMEN NO.	DEPTH (ft)	DIAMETER (in)	THICKNESS (in)	SPLITTING TENSILE STRENGTH (psi)	EFFECTIVE UNIT WEIGHT (pcf)	ROCK TYPE
WA-6	RD-1	45.8-46.4	1.76	0.89	1210	166.1	Weathered Micaceous Gneiss
WA-6	RD-2	45.8-46.4	1.76	0.86	930	166.2	Weathered Micaceous Gneiss
WA-6	RD-3	45.8-46.4	1.75	0.87	927	164.3	Weathered Micaceous Gneiss
WA-6	RD-4	45.8-46.4	1.76	1.06	990	163.3	Weathered Micaceous Gneiss

REMARKS: The moisture condition of this specimens was as-received.
 The average splitting tensile strength of all specimens was 1,014 psi w/ std. dev. of 134.
 The average time to failure was 4.2 minutes.
 The average rate of loading for all specimens was 241 psi/min.
 The effective unit weight was determined by the volumetric method.
 RD (Rock Disk)

US ARMY, CORPS OF ENGINEERS - BALTIMORE DISTRICT MATERIALS & INSTRUMENTATION UNIT
TEST REPORT

AREA: Washington Aqueduct Division
PROJECT: Residuals Processing Facility
Washington, DC

DATE: Apr 2005

TEST: ASTM D 2938 UNCONFINED COMPRESSIVE STRENGTH of Intact Rock Core Specimens
RTH 109-93 Method of Determining EFFECTIVE (As Received) and DRY UNIT WEIGHTS of Rock Cores

HOLE NO.	SPECIMEN NO.	DEPTH (ft)	DIAMETER (in)	LENGTH (in)	UNCONFINED COMPRESSIVE STRENGTH (psi)	EFFECTIVE UNIT WEIGHT (pcf)	ROCK TYPE
WA-1	RC-1	33.0-33.7	1.86	3.78	4,607	167.5	Weathered Micaceous Gneiss
WA-2	RC-1	54.0-54.6	1.85	3.75	2,404	161.8	Weathered Micaceous Gneiss
WA-5	RC-1	33.9-34.5	1.77	3.82	6,639	171.7	Micaceous Gneiss
WA-8	RC-1	58.4-59.1	1.76	3.81	9,039	172.4	Micaceous Gneiss

REMARKS The moisture condition of this specimens was as-received.
The average time to failure was 3.0 minutes.
The average rate of loading for all specimens was 1,891 psi/min.
The effective unit weight was determined by the volumetric method
RC (Rock Core)